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BRONCHITIS: ESPECIALLY CHRONIC.[1]

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No group of diseases causes such a marked degree of absenteeism as the respiratory infections. Except in the case of an influenza epidemic, the common cold and bronchitis (both acute and chronic) hold the first place in temperate and cold climates. Little advance has been made in elucidating the ætiology of bronchitis, but it would appear that it is bound up very closely with that of the common cold or acute coryza, and it will be necessary for me to refer to what is known about the common cold in dealing with bronchitis.

I propose to deal chiefly with chronic bronchitis, but it is first necessary to have some form of classification for a working basis. Rarely can any classification be regarded as perfect. That may be said of the simple classification I have chosen for bronchitis, which I have divided into acute bronchitis, acute laryngo-tracheo-bronchitis, chronic fibrinous bronchitis and chronic bronchitis.

Acute Bronchitis.

Acute bronchitis is an acute inflammatory condition of the trachea and bronchi with desquamation of the ciliated epithelium. It frequently begins as an upper respiratory tract infection, and after two or three days the infection descends to the bronchi. Pyrexia, headache, pains in the back and limbs, cough and sputum are present. Râles are common at the bases of the lungs and rhonchi are heard over the whole of the chest. The organisms found in the sputum are pneumococci, influenza bacilli, *Micrococcus catarrhalis* and colon bacilli, but in all probability a virus is the activating factor. The colder months of the year have a bearing upon the condition, which may last for one week or longer. It may clear up completely; but thereafter, in many cases, there is a predisposition to further attacks, and thus it may develop into chronic bronchitis with multiple acute exacerbations. This will be discussed under the heading of chronic bronchitis.

Treatment necessitates confinement to bed. Steam inhalations are comforting. Chemotherapy is indicated when the temperature is very high. Expectorant mixtures are of value, and a linctus containing heroin is most soothing for the unproductive and distressing cough. The heating of the room is an excellent device. After the cessation of symptoms and signs, adequate time should be allowed for convalescence.

Acute Laryngo-Tracheo-Bronchitis.

Acute laryngo-tracheo-bronchitis is a disease particularly of young children and may be preceded by an acute coryza. The onset is rapid, with hoarseness, cough and stridor simulating laryngeal diphtheria. It has been recognized in the United States of America since 1920. The literature was reviewed recently by Arden and Duhig,[1] who reported their histological findings of complete destruction of the mucosa. This disease is fatal in about 50% of cases, from pronounced œdema of the bronchial mucosa and thick tenacious secretions, which often lead to massive collapse of the lungs in severe cases. The organisms found in the sputum or secretions are as varied as in other bronchitic conditions; but the cause of acute laryngo-tracheo-bronchitis is unknown. My experience of this condition has been limited to a few of the milder cases, of which we had a small epidemic last winter. Treatment consists of continuous steam inhalations. Sulphapyridine is indicated. Potassium iodide may help and heroin linctus is of value. In more severe cases tracheotomy is indicated, and even bronchoscopic suction applied through the tracheotomy wound may be required. This disease is by no means rare.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on July 27, 1944.

Chronic Fibrinous Bronchitis.

Although acute fibrinous bronchitis has been described, I doubt its existence. Although no one of us sees a large number of patients suffering from fibrinous bronchitis, it seems to me that those cases regarded as "acute" are really the beginning of the chronic condition. It is characterized by the formation, in certain of the bronchial tubes, of casts, which are expelled during severe paroxysms of coughing and dyspnœa. The casts consist chiefly of mucin and epithelium and not of fibrin. It is a rare condition occurring in males and females usually before middle life. In the records of the Royal Prince Alfred Hospital, from the year 1938 for the following five years, no case of fibrinous bronchitis is recorded. In my records throughout a similar period, only one female patient is noted as suffering from this disease; it began at the age of sixteen years.

The cause of this distressing condition is unknown, and the unfortunate sufferer experiences attacks of severe coughing with expulsion of casts of the bronchial tubes throughout the whole year. Climatic conditions have little effect upon the frequency and severity of the paroxysms, and at times the patient's temperature rises to 100° F. Bronchoscopic examination reveals no constant finding, the mucosa having anything from a pale colour to an inflamed appearance after separation of the cast. Radiological and bacteriological examinations are of no aid in the diagnosis, which is easily made, however, by the history and the typical casts.

The prognosis for life is good; but the subjects are of little use in the labour market. They die of terminal pneumonia or cardiac failure. The response to treatment is extremely disappointing. Hot drinks, inhalations and emetics are of some slight value. Potassium iodide in large doses is useful for some patients. Adrenaline is of no value. Vaccine therapy, short-wave therapy, and ultra-violet light have little effect. This condition, which is unlike all other types of bronchitis, may be found some day to belong to another category.

Chronic Bronchitis.

Chronic bronchitis may follow an acute attack or may occur in the course of certain infectious diseases—for example, measles and whooping cough. I have taken 500 histories from my records in which a diagnosis of chronic bronchitis was made. The only selection in this series was to exclude patients suffering from active pulmonary tuberculosis and from primary myocardial degeneration (that is, from myocardial degeneration not secondary to chronic bronchitis). All patients presented themselves with the symptoms of cough, varying in duration from five weeks to fifty years, or of cough and sputum, or of frequent "colds" in the head and chest, or of cough with shortness of breath, or of "asthma". Hereafter this series will be referred to as Group A.

The diagnosis of chronic bronchitis is suggested by the history of a cough, continuous or recurrent, and sputum. The cough is usually worse in the colder or changeable months (spring and autumn), when acute exacerbations with asthmatoid symptoms often occur. Except when these acute exacerbations occur, the patients are able to attend to their usual duties. The cough is worse in the early mornings and is often associated with sneezing attacks. Pulmonary tuberculosis is often suspected; but it is usually not of such chronicity and intermittent a character as chronic bronchitis.

The sputum varies in amount, and in type it varies from mucopurulent to frankly purulent. It is rarely blood-stained unless bronchiectasis is present. Laennec's perles occurred in fifteen of the patients in Group A. Children under six years of age rarely expectorate, but they often vomit the swallowed material.

Physical Examination.

In mild cases no abnormal sounds may be heard in the chest between the attacks. Frequently, harsh vesicular breath sounds are audible at the lung bases, with prolonged expiration. Varying numbers of râles, ranging from fine to coarse, and usually bilateral, are heard at the bases of the lungs; these may vary from day to day. In the more chronic cases the basal râles are more persistent, and rhonchi, chiefly inspiratory, are often heard.

During acute exacerbations the findings resemble those of acute bronchitis, with or without pyrexia, increased sputum and increased râles and rhonchi, both inspiratory and expiratory. An acute exacerbation, especially in the adult, may run an afebrile course throughout. Of 100 patients in hospital (Group B), only 23 were obviously febrile on their admission to hospital, and seven were slightly febrile. The remaining 70 patients (including seven who had been admitted for bronchoscopic examination only) were afebrile.

The degree of "shortness of breath" complained of, or dyspnœa, depends upon the degree of bronchial spasm. Some degree of bronchial spasm is present in the chronic bronchitic patient. This may be so severe that the patient suffers from prolonged severe attacks of "asthma".

X-Ray Appearances.

In the early and milder case of chronic bronchitis, no abnormality may be detected on X-ray examination of the lungs. In the lungs of patients with a longer history, basal radiating striations are found. These are probably vascular in the early stages, but later increased striations due to linear fibrosis may be found. In Group A, 206 patients showed radiological evidence of chronic bronchitis—often reported as chronic "catarrhal" changes. As all patients were not subjected to radiological examination, no percentage can be given; but the percentage is very high. Enlarged hilar glands are not infrequently found. The histories of 100 in-patients from the records of the Royal Prince Alfred Hospital with the diagnosis of chronic bronchitis were examined. The records are consecutive and date from the year 1938 to the year 1942. These patients will be referred to in Group B. Of these, 54 gave radiological evidence of chronic bronchitis, and in twelve the lungs were reported "clear". It must be pointed out that we are dependent upon the individual radiologist's impressions for the interpretation of these findings, which may vary, especially in the milder cases.

Bacteriological Findings.

The organisms found in the sputum and in the material from bronchoscopic suction, are those which normally inhabit the naso-pharynx. In Group B, the sputum of 25 patients was bacteriologically examined. The organisms isolated, and the number of times they were found, were as follows:

Micrococcus catarrhalis	17
Pneumococci	16
Streptococci	14
Gram-positive cocci	10
Gram-negative bacilli	2
Friedländer's bacilli	2
Diphtheroid bacilli	1

In no case was any attempt made to isolate a virus.

Histology.

Histological findings vary according to the severity and chronicity of the disease. In the less severe cases the bronchial mucosa is congested and round-celled infiltration is present. In later cases the epithelium is degenerated, cuboidal or flattened, hypertrophic or atrophic, and in long-standing cases pronounced fibrous infiltration is present.

The Sedimentation Rate.

The sedimentation rate varies in different subjects and is usually normal. But it may be increased up to 20 millimetres, especially during febrile periods.

Age Incidence.

Children and those in the old-age group are particularly prone to chronic bronchitis; 22% of Group A were aged under ten years and 47% of Group B were aged over fifty-one years (see Table I). The majority of subjects in Group A were ambulatory, Group B were hospital patients,

and the low percentage of children in Group B is explained by the relatively few children admitted to the hospital. The high percentage in Group B of subjects aged over fifty-one years, as compared with 15% in the same age group of Group A, is explained by the fact that no selection was made in this series with reference to primary myocardial degeneration predisposing the patient to chronic bronchitis.

TABLE I.

Age in Years.	Group A. 500 Ambulatory Patients: 267 Males (53%) and 233 Females (47%).		Group B. 100 Patients in Hospital: 61 Males and 39 Females.
	Number.	Percentage.	
1 to 10	111	22	11
11 to 20	72	14	9
21 to 30	83	17	12
31 to 40	84	17	13
41 to 50	73	15	8
51 and over	77	15	47

Infected tonsils and post-nasal infection are common in children. These are undoubtedly a cause of descending infection and lead to chronic bronchitis. Taylor[2] and others call this "chronic pulmonary catarrh", but I see no reason to call it other than chronic bronchitis. Taylor further asserts that there is a tendency for children to "grow out of it". This is a popular phrase which I regard as a fallacy. Although in Group A a fall in percentage is obvious after ten years of age, it is most probable that enucleation of tonsils and adenoids and the removal of the child to a healthier area are largely responsible for the improvement. Thus the child is helped out of it rather than "grows out of it".

Chronic bronchitis is said to be the commonest of all diseases in the aged. I consider that the increased vascularity of the lungs, due to advancing myocardial damage and other senescent changes, is a predisposing cause to the development of chronic bronchitis, by providing a fertile field for bacterial growth in the bronchial mucosa.

Sex Incidence.

Among the subjects in my series males predominated. In Group A 53% were males and 47% were females. In Group B 61% were males and 39% were females.

Ætiology.

Little is known of the true ætiology of chronic bronchitis. Many patients complain of excessive sneezing, nasal blockage and discharge. It was observed that the nasal mucosa of patients in Group A was usually red and chronically inflamed. Undoubtedly the ætiology is intimately associated with that of the common cold or acute coryza. Greenspan,[3] in an essay on the common cold, has ably reviewed the literature to date, and the ætiological factors of the common cold outlined by him can well be applied to chronic bronchitis. Briefly the theories are as follows: (i) the vasomotor theory, which attributes the disorder to a lack of protection from overcooling; (ii) the bacterial theory; (iii) the virus theory.

The Vasomotor Theory.

Exposure to cold and dampness are predisposing factors to respiratory infections, and body temperature changes are likely to precipitate acute exacerbations. In this climate temperature changes are most abrupt. Common colds and bronchitis are more frequent and severe than in the consistently hot climates. The condition of the chronic bronchitic is usually worse at "the change of the seasons", when temperature changes from hot to cold are sudden. This has been attributed to the too rapid shedding of clothes in the spring, and the failure to add to the clothing in autumn. Corlette[4] has studied the heat-lifting capacity of wind in relation to the human body and surveyed the cold June westerly wind which causes a tremendous flood of heat loss. Corlette[5] states that sudden excessive and uncontrolled heat loss will upset equilibrium and cause a "chill". This suggests the risk of being underclothed, the dangers of draughts and other causes of body temperature change. The humidity and temperature both have a bearing on the refrigeration capacity of winds, as well as the velocity. In hot climates the heat production of the body becomes habitually lower and many people do not become acclimatized. In this climate certain subjects have a heat-regulating mechanism which responds slowly to a drop in temperature. These subjects are prone to respiratory infections. Lippmann[6] states "that young Australians react more noticeably and more rapidly to the changes of temperature than people living in cooler climates. The fact that they are more accustomed to open air life and spend much time sunbaking on the beaches may help to explain this; perhaps owing to the effects of such habits upon the training of the skin vessels".

The extremities play the greatest part in loss of heat from the body, but the forehead has usually the highest temperature of all skin regions. In this climate it is obvious that we should be adequately clothed from head to foot. The bronchitic patient, although his condition is better in the summer months, is liable to attacks due to cold changes from our southerly winds. In low-lying and damp suburbs, the latent heat of vaporization is drawn from the body when the temperature is cold. This fact, with the great refrigerating properties of the wind, predisposes the subject to bronchitis. Such very dangerous suburbs are found along the harbour shores, on Botany Bay and on Cook's River. Dangerous suburbs are situated along the coast and in low-lying areas. An attempt was made with Group A patients to determine in what locality the bronchitis began. It is difficult in many cases for the subject to be sure where the place of residence was when the respiratory infection first occurred. The results obtained upon investigation are as follows:

Very dangerous suburbs of Sydney ..	147
Dangerous suburbs	60
Suburbs (not regarded as dangerous) ..	139
City	5
Coastal districts of New South Wales ..	52
Other States and country	69
Mountains	21
Overseas	7

Fifty-two *per centum* of the patients were living in unhealthy areas.

Bacterial Theory.

It was at one time thought that the organisms found on nasal swabbing and in the sputum were the causal agents. There is some doubt whether these organisms are constantly present in the bronchi. In the more chronic cases they probably are constantly present. However, if they are not present in all cases, they soon descend to the site of chronic congestion as a result of an acute coryza or some predisposing cause.

Certain organisms were obtained from bronchitic patients during an acute exacerbation, and living cultures were liberally applied to the nasal mucosa of 28 chronic bronchitic patients in an endeavour to produce an acute attack. The inoculation took place with the patient in the erect posture, the head being thrown back; the weather was hot and dry. *Micrococcus catarrhalis* was applied to six patients, *Staphylococcus aureus* was applied to five patients, non-hæmolytic streptococci were applied to fourteen patients, and a mixture of *Staphylococcus aureus* and *Micrococcus catarrhalis* was applied to three patients. In no instance was an acute exacerbation manifested, even when the donor patient's own living culture was inoculated into the nose when he was free from symptoms. It is obvious that these organisms alone are not responsible for the attacks any more than they are the primary cause of the common cold. They must be regarded as secondary invaders of the damaged bronchial mucosa and the probable cause of sequelæ. In Group A, 27 (5%) of patients had been subjected to antrostomy, and nine (2%) had gross antritis. The nasal mucosa was chronically inflamed in the majority of cases; this indicated a chronic infective

process; but a gross purulent infection is less common than is generally supposed. It is an interesting point that 53 patients (11%) had nasal polypi at the time of examination or had been operated upon for nasal polypi.

Virus Theory.

Dochez[7] has isolated a virus which is now regarded as the primary cause of the common cold. The nasal symptoms and signs in the chronic bronchitic are due to multiple virus infections. The whole respiratory tract of the chronic bronchitic is in a receptive state for renewed infection, and it is highly probable that some virus is responsible for acute exacerbations. This virus possibly activates the organisms already present and must be the potent factor in droplet infection.

Predisposing factors causing acute exacerbations are the following: (i) chronic upper respiratory tract infection; (ii) droplet infection; (iii) measles, whooping cough; (iv) sudden changes of body temperature, due, for example, to insufficient clothing, non-wearing of hats, sleeping "out" and draughts, swimming, central heating, low damp dwellings, fogs and mists; (v) irritation, caused by smoking or irritating fumes.

Complications.

Complications are bronchopneumonia, emphysema, bronchiectasis, congestive cardiac failure and enlarged hilar glands.

Bronchiectasis was found in nine patients in Group A of the 206 showing radiological evidence of bronchitis; five of these were aged ten years or under. In Group B, in which 54 had radiological evidence of bronchitis, four suffered from bronchiectasis. It is thought that atelectasis precedes bronchiectasis in many children. Tannenberg and Pinner[8] have shown that complete atelectasis may exist for a long time without complicating processes within the lung, provided that the atelectatic lung does not become infected. Bronchiectasis is often a late stage of chronic bronchitis.

Congestive cardiac failure was present in eight of the patients in Group B. Recurrent attacks have been observed in aged patients, usually in the autumn and winter months.

Differential Diagnosis.

Between acute exacerbations, the differential diagnosis must be made from pulmonary tuberculosis, bronchiectasis, carcinoma of the lung and cardiac failure of slow onset.

With regard to pulmonary tuberculosis, X-ray and sputum tests will decide the question. Usually some chronic bronchitic changes are present in the lungs of patients suffering from the more chronic type of pulmonary tuberculosis. In bronchiectasis, hæmoptysis is common. It is frequently associated with chronic bronchitis in varying degrees. With regard to carcinoma of the lung, the clinical history of recent cough and loss of weight and the clinical signs will assist in the diagnosis. X-ray and bronchoscopic examination will usually confirm the diagnosis. In cardiac failure of slow onset, nocturnal dyspnœa and cough are often observed before any gross signs of failure appear. The history of breathlessness on exertion is of little value, as many young people suffering from chronic bronchitis complain of this symptom. Asthmatoid symptoms with clear sputum, especially when present at night, are indicative of myocardial damage. Clinical examination of the heart may assist in the diagnosis. The blood pressure is often raised in this form of cardiac failure, whereas it is apt to be low or normal in chronic bronchitis.

During acute exacerbations, the differential diagnosis must be made from bronchopneumonia, atypical pneumonia, abscess of the lung, influenza due to virus A and B infections, massive collapse of the lung and inhalant asthma.

Lusk and Lewis[9] state that the onset of atypical pneumonia may be sudden, gradual or insidious; the disorder may take on the character of bronchitis before the pneumonia becomes evident. The physical signs may last for months. Atypical pneumonia is probably due to a virus. X-ray examination reveals patchy consolidation.

Influenza due to virus A and B infections has been studied by Burnet[10] in connexion with upper respiratory tract infections. The virus, when experimentally administered, produced acute nasal symptoms which preceded the general symptoms by about eighteen hours. Dochez describes a cough resembling bronchitis in the chimpanzee, and Burnet has found that severe damage is almost wholly limited to the bronchioles. Influenza may occur in epidemic or pandemic form, but isolated cases have been found throughout the camps in the winter months. After an attack there is a rapid increase in the amount of antibody in the blood, which usually persists for a year or more. The sufferer from chronic bronchitis experiences between two and five severe attacks during the year, each lasting from one to four weeks or more. It is highly unlikely that they are virus influenza infections. If so, the antibodies in the blood of certain subjects must have dropped to a low level within a few weeks. Further, the acute exacerbations of chronic bronchitis usually last longer than an attack of influenza. Although the symptoms and signs of the two disorders may resemble one another, the many certificates of absenteeism should read "acute exacerbation of chronic bronchitis", and not "influenza".

In massive collapse of the lung, bronchitic signs in the sound lung may be heard. Massive collapse is common in allergic subjects and is often recurrent. This condition was found in eight of the patients in Group A.

In inhalant asthma, a family history of allergy and the obtaining of positive responses to skin tests to allergens are frequent. In Group A, 175 patients (35%) gave positive responses to skin tests. Many chronic bronchitics suffer from severe asthma, and in my opinion *status asthmaticus* is almost always based upon chronic bronchitis. The history of asthmatic attacks lasting from three days to three weeks and associated with purulent sputum is indicative of chronic bronchitis.

Treatment.

Treatment should be directed along well-approved hygienic lines, so that it will afford the sufferer protection, as far as possible, from body temperature changes and upper respiratory tract infection, increase the resistance of the patient to the infection, and decrease the cough by liquefying the sputum. Even small measures instituted along these lines may be of great benefit.

Protection against Sudden Body Temperature Changes.—With regard to protection against sudden cool changes in body temperature, a dry climate is most suitable for these patients, and the western plains are ideal. Subjects must avoid living in low-lying and damp suburbs, and they should not sleep on an open veranda or in a draught. Washing and cutting the hair or artificial drying should be avoided on cold days. Swimming is harmful and best avoided, but sunbaking on warm, still days is beneficial. The clothing should be adequate for the day, and woollen vests are necessary from autumn to spring. Fathers, particularly, are in favour of the "hardening process"—no hats, sleeping out, little clothing, swimming and cold baths. There is no sound evidence in favour of this hardening process—in fact, it most frequently does much harm. The wearing of a hat or cap is essential for all who are subject to respiratory infections. As a prophylactic measure, in my opinion, it is advisable for everyone living in this climate to wear a hat on account of the sudden changes. The body loses a great deal of heat from the head on account of the high skin temperature, and it is necessary to guard against this loss. The simple expedient of wearing a hat on every occasion when going out of doors is, in itself, enough to reduce the frequency of upper and lower respiratory tract infections. At the present time over 50% of women, many men, and most children wear no hats. This is a false economic measure, as is shown by the results obtained among those who have taken to wearing hats. Faulty posture should be corrected, especially in children. Breathing exercises with a prolonged passive expiration are of benefit to subjects with asthmatoid symptoms. Smoking is irritating to the whole respiratory tract and should be scrupulously avoided.

Avoidance of Upper Respiratory Tract Infections.—Diseased tonsils and adenoids should be removed, and any remnant of infected tonsil or adenoid tissue should be eliminated, especially in children. There is no need to hesitate to remove infected tonsils from children of any age. Any protective function the tonsils possessed has passed away, and they act as a constant focus of infection. Avoidance of contact with persons suffering from acute infections is always desirable. Any other surgical procedures carried out on the nasal passages should be as conservative as possible. For early morning sneezing, chronic sinusitis and multiple common colds, nasal sprays are of value. Dolowitz *et alii*[11] in well-controlled experiments have shown the value of a 2·5% sulphadiazine spray in preventing complications of the common cold. I have used 2% sulphathiazole sprays with benefit to these patients, but with no series of controls. Recent experiments with a penicillin spray are even more encouraging.

The Resistance of the Patient.—To increase the resistance of the patient, vaccines of all types have been used, subcutaneously and orally, for many years. There is a weight of evidence in properly controlled experiments to show that they are of little or no value. Diehl, Baker and Cowan[10] showed this in the case of cold vaccines. But they worked in a climate where the temperature changes are not so sudden as in this climate. A control series is rare, and one is forced back upon one's impressions regarding the efficacy of vaccine therapy. I am confident of its value as a prophylactic measure. The vaccine should be given at intervals of one week to produce a local reaction, and insufficient to produce a general reaction. The initial dose should be small and the weekly increase should be small. Large doses frequently do a great deal of harm by producing severe general reactions—increased cough, asthma and even *status asthmaticus* in the bacteria-sensitive subject. I have obtained the best results with catarrhalis immunogen in weekly doses. There is no advantage in using an autogenous vaccine in chronic bronchitis. It is possible that a nasal spray of a living, attenuated virus may be of help as a prophylactic measure. Where hilar glands are enlarged, deep X-ray irradiation is of value.

Liquefaction of the Sputum and Control of the Cough.—A glass of hot water first thing in the morning is of benefit. The drug of choice and of real value as an expectorant is potassium iodide. It is well tolerated as a rule and can be given for six months of the year if necessary. Antispasmodics are of some value for the asthmatic patient. Ephedrine may help, but should be avoided if possible on account of its toxic effects. The ammonium salts are nauseating and are of no value as expectorants. If the sputum is copious postural drainage affords great relief, and in the chronic case bronchoscopic suction is indicated. For the aged patient who has œdema of the ankles, small daily doses of digitalis are indicated also.

Treatment of Acute Exacerbations.—In mild cases the patients are often ambulatory. When the attack is severe, the patient must be put to bed in a warm room and steam inhalations must be given. Adrenaline is often required for the dyspnœa and may afford marked but temporary relief. Potassium iodide is of use if the patient is afebrile, and *Linctus Heroin* is most comforting for the unproductive cough. When high pyrexia occurs, sulphapyridine treatment should be started at once. I agree with Howell[13] that pyrexia and not consolidation should be taken as the indication for chemotherapy. Any vaccine which is being administered should be stopped.

Summary.

Respiratory infectious cause much absenteeism.

Five hundred ambulatory patients, and 100 patients in hospital, all suffering from chronic bronchitis, have been studied.

No ætiological agent has been isolated in chronic bronchitis, but it is highly probable that the agent is intimately associated, if not identical, with the virus of the common cold.

The organisms found in the sputum are secondary invaders.

Diseased tonsils and adenoids should be removed from children irrespective of age.

Abrupt temperature changes precipitate acute exacerbations throughout the year. Even small measures directed to prevent rapid heat loss from the body are valuable.

The "hardening process" advocated by many fathers of bronchitic children has a number of dangers.

Clinical impressions from the use of vaccines indicate their value, when given in small weekly doses and sufficient to produce a local reaction only.

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CANCER OF THE CERVIX UTERI, 1930–1942.

By HERBERT H. SCHLINK AND CLEMENT L. CHAPMAN,
Sydney.

As the result of a conference with the Director of Cancer Treatment in 1929, the three clinical schools of Sydney promised to adopt different forms of treatment for cancer of the *cervix uteri* and to meet every five years and compare their results. The Royal Prince Alfred Hospital was allotted the task of recording the results from the use of radium combined with surgery. My colleague Dr. Clement Chapman and I have kept faithfully to the plan arranged, but for some reason or other we have never been called together to compare results. As it is now over ten years since we commenced to record our results in detail, we think their presentation will be of interest to cancer workers not only in Australia, but wherever interest is taken in the subject. At the outset we should like to state that we have no prejudice against any form of treatment, and in point of fact believe that in such a disastrous and deadly disease all forms of treatment should be given a trial, so that the medical profession may ultimately be in a position to advise sufferers as to the method which offers them the best chance of survival. We believe that in the past over-enthusiastic advocates of particular methods of treatment have prevented the real truth from being discovered. Furthermore, we are strongly of opinion that relative statistics have led to confusion, and that nothing but absolute statistics should be accepted as the standard for comparing figures presented by the various clinics of the world.

The medical profession is indebted to Bourne and Williams for the excellent chapter on cancer of the uterus in their book "Recent Advances in Obstetrics and Gynæcology", fifth edition. Bourne and Williams have made a clear analysis of the often conflicting results in the treatment of cancer of the *cervix uteri* by radiotherapy as presented to the League of Nations Health Organization by the various clinics throughout the world. The summarized figures from sixteen world centres are set out so as to be understandable to even the busiest general practitioner.

Before discussing the details of our own work we present our five-year and ten-year statistics (1930 to 1942) in similar fashion (Table I), so that a clear comparison can be made between the results of treatment by radiotherapy as practised at the various clinics of the world and our own method, which, in short, is that all patients treated are given one full dose of radium, 5,000 to 7,000 milligramme-hours, with one millimetre of platinum screenage to the uterus and two millimetres of platinum screenage to the vagina, and that after five weeks those considered operable are submitted to Wertheim's radical hysterectomy.

Table I.

Cancer of the Cervix Uteri.

Condition of Patients.	Five-year Statistics, Royal Prince Alfred Hospital (1930–1942).	Aggregate Figures from Sixteen World Centres (Bourne and Williams).
Patients seen with a view to treatment	258	9,051
Patients treated; all cancers microscopically proved	246 (95·3%)	7,958 (87·8%)
Alive without recurrence after five years	74 (30·0%)	2,194 (27·6%)
Alive with recurrence after five years	3 (1·2%)	128 (1·6%)
Died of cancer	154 (62·6%)	5,368 (67·5%)
Died of operation (112 subjected to operation)	4 (3·5%)	
Died of radium treatment (134 treated)	4 (2·9%)	
Died of intercurrent disease	7 (2·8%)	103 (2·0%)
Lost	0	105 (1·3%)
Five-year cure percentage among all patients seen	28·6%	24·2%
Five-year survival rate amongst all patients seen	29·4%	25·6%

From these five-year figures it would appear that the use of surgery in addition to radium saves an extra 4·4% of all patients examined over those treated by radiotherapy alone. Whether or not this advantage will be maintained when the ten-year statistics of each method of treatment are compared remains to be seen. From the study of our own absolute statistics we find that our five-year cure rate drops from 28·6% to a ten-year cure rate of 26·9%.

A relative survey of our comparatively small number of five-year treated patients (246), of whom 84 have qualified for our ten-year statistics, shows that the cure rate of radium treatment and surgery fell from 56·1% to 51%,

Table II.

Ten-Year Cure Rate, Cancer of the Cervix Uteri (1932–1942).

Condition of Patients.	Ten-year Statistics.
Patients examined with a view to treatment	89
Patients treated (all cancers microscopically proved)	84 (94·3%)
Alive without recurrence after ten years	24 (28·5%)
Alive with recurrence after ten years	1 (1·1%)
Died of carcinoma	54 (64·2%)
Died as a result of operation (43 subjected to operation)	Nil
Died as a result of radium treatment (41 treated)	2 (4·8%)
Died of intercurrent disease	3 (3·5%)
Lost	Nil
Ten-year cure rate among patients examined	26·9%
Survival rate of all patients examined	28·0%

whereas the cure rate of radium treatment fell from 8·1% to 4%. From these figures it would appear that among the five-year cures, 50% of patients treated by radium alone will perish before they reach their tenth year from the commencement of treatment.

We are therefore forced to the opinion that treatment by radium and surgery will appear in an even more favourable light when the League of Nations Organization publishes the ten-year cures by radiotherapy from the cancer centres throughout the world.

Six cases in which the condition was designated as precancerous by the pathologist have been excluded from these statistics; all these patients are alive.

On account of the bias that has been displayed by the partisans of particular forms of treatment for cancer of the *cervix uteri*, statistics must continue to be published so as to show the absolute cure rates; but we venture to predict that in the future when more accurate classification of stages of growth is mastered by practitioners as well as specialists, cancer centres will take more cognizance of the results of treatment of the first, second and third stages of the disease and will exclude fourth-stage cases as mostly beyond the scope of practical therapeutics. Then and only then will the true merits of the various forms of treatment become clarified. If the physicians would only bestir themselves and become expert in the classification of cervical cancer, we should have a judicial body capable of stating what patients should and what patients should not be subjected to treatment with the object of permanent cure.

To discover the best form of treatment for this lethal disease, it would be far better for all workers to discard all those patients who are suitable for palliative treatment only and concentrate on those who may possibly be salvaged. With the forms of treatment at our disposal, no real advancement in cure can be made until the sufferers present themselves in the first and second stages—certainly not after the third stage has been passed.

Our own statistics, reviewed when the fourth stage is excluded, are enlightening.

Table IIIa.

Carcinoma of the Cervix: Five-Year Cure Rate.

Technique of Treatment.	Patients in Stage I.			Patients in Stage II.			Patients in Stage III.			Patients in Stage IV.			Total.		
	Number.	Alive.	Per-centage.	Number.	Alive.	Per-centage.	Number.	Alive.	Per-centage.	Number.	Alive.	Per-centage.	Number.	Alive.	Per-centage.
Radium and surgery	16	13	80·0	53	32	60·0	43	18	41·0	—	—	—	112	63	56·1
Radium	1	1	—	9	3	33·0	83	7	8·0	41	—	—	134	11	8·1
Nil, or incomplete treatment	—	—	—	—	—	—	3	—	—	9	—	—	12	—	—
Total	17	14	82·0	62	35	56·0	129	25	19·0	50	—	—	258	74	28·6

TABLE IIIB.

Carcinoma of the Cervix: Ten-Year Cure Rate.

Technique of Treatment.	Patients in Stage I.			Patients in Stage II.			Patients in Stage III.			Patients in Stage IV.			Total.		
	Number.	Alive.	Percentage.	Number.	Alive.	Percentage.	Number.	Alive.	Percentage.	Number.	Alive.	Percentage.	Number.	Alive.	Percentage.
Radium and surgery ..	4	3	75·0	27	13	48·0	12	6	50·0	—	—	—	43	22	51·0
Radium ..	—	—	—	4	2	50·0	20	—	—	17	—	—	41	2	4·0
Nil, or incomplete treatment	—	—	—	—	—	—	2	—	—	3	—	—	5	—	—
Total ..	4	3	75·0	31	15	48·0	34	6	17·0	20	—	—	89	24	26·9

TABLE IV.

Cancer of the Cervix Uteri. First, Second and Third Stage Cures.

Duration of Cure.	Radium and Surgery.	Radium Alone.
Five years ..	56·0%	11·8%
Ten years ..	51·0%	8·0%

Radium Treatment followed by Wertheim's Radical Hysterectomy.

All the patients treated five to ten years ago (246) were given radium treatment (5,000 to 7,000 milligramme-hours, one millimetre of platinum screenage to the uterus and two millimetres of platinum screenage to the vagina), and in 112 cases this treatment was followed by the radical Wertheim hysterectomy—an operability rate of 45·5%. The operative mortality rate was 3·5%, as compared with a radium mortality rate of 2·9%.

It is often stated that the difficulties of the radical operation are beyond the capabilities of the average surgeon. We entirely disagree with such a statement, but admit that no surgeon without a well-trained team in a good hospital environment should attempt this work. The operation, if performed five weeks after radium has healed the primary lesion, is a very safe risk, and is attended by almost as low a mortality rate as the application of radium alone and by no more morbidity than attends any major surgical procedure in the pelvis. The great advantage of the radical operation is that the lymphatic glands are removed. The glands were invaded by cancer (microscopically verified) in 20% of our cases in which operation was performed (36 out of 180). The majority of radiotherapists admit that treatment by radium or X rays has no effect on cancer of the lymphatic glands, so it is reasonable to suppose that our better results obtained by radium treatment and surgery over the results of radiotherapy at sixteen world centres (4·4%) are due in some degree to the fact that this 20% of invaded material is removed at operation.

The preoperative use of radium, however, has allowed us to operate in a clean field, and it is in our opinion entirely responsible for the low operative mortality rate, as compared with the rate of 9% to 19% in the clinics of the world.

Our limited experience of the effects of deep X-ray therapy on cancer of the uterus has convinced us that this form of treatment offers little hope of cure to the sufferer, and latterly we have abandoned its use entirely.

Pathological Considerations.

In our first paper on cancer of the *cervix uteri*, read at the Fourth Australian Cancer Conference at Canberra in 1933, we pointed out that the removal of irradiated cancerous tissues would provide a wealth of material for scientifically checking the curative effect of the application of radium. We have not been disappointed, as we now have thousands of slides of the tissue removed at operation. One of the salient facts that has come to light is the variability of the cancer cell sensitivity to radiotherapy. We found the cervix free from cancer cells after radium treatment in 47·5% of cases and cancer cells still present in 52·5%. The glands were invaded in 20%. In fourteen cases out of 180 we found the cervix free of cancer cells, but the glands involved. Another interesting fact that came to light was that from the patients treated by a dosage of 5,000 milligramme-hours of radium, as many microscopically cancer-free cervices were obtained as from those treated by a dosage of 7,000 milligramme-hours. We also noted that 99% of cases of cancer of the cervix yielded evidence of a previous inflammatory storm, as indicated by *salpingitis chronica* and chronic metritis. The sequelæ of radium treatment, such as pyometra due to stenosis of the cervical canal *et cetera*, were evident in some of the patients treated by radium six months or more before operation. Again, we have positive proof that cancerous lymph glands, even those as near the surface as the inguinal glands, are little affected by the heaviest doses of radiotherapy. Lastly, a careful study of the biopsy material from the *cervix uteri* and of uteri removed for other morbid conditions has taught us how prevalent metaplasia is. From our local experience we have no hesitation in stating that a cancer centre that has failed to have competent pathologists attached to it is not worth serious consideration, because immature pathologists are unable to distinguish between frank cancer, precancerous conditions and metaplasias. The statistics of clinics which do not employ first-grade pathologists should be disregarded in our search for the truth about this foul scourge of the human race.

Acknowledgements.

This small piece of what we may term clinical research could not have been accomplished by surgeons alone. It needed the help of every member of the professional and lay staff in the department, as well as the cooperation of the Registrar-General and the Police Force of New South Wales. We therefore ask to be allowed to pay honour to our co-workers: Dr. F. N. Chenhall, Miss M. McIlrath, Dr. A. H. Tebbutt, Professor D. A. Welsh, Professor W. K. Inglis, Dr. Geoffrey Davies, Dr. Emily Day, Dr. Jean Collier, Dr. Mary Heseltine, our resident medical officers, past and present, Mr. Newson (technician), Miss Cunningham (secretary), the nursing sisters and our own private secretaries, the Registrar-General and the Commissioner of Police.

APPENDICITIS IN ITS RELATION TO PREGNANCY.

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THE recent occurrence of several cases of appendicitis during pregnancy in the out-patient department of an obstetric hospital has prompted the publication of the following notes on this subject. They are mainly abstracted from a paper presented by me at a clinical meeting held at

Saint Margaret's Hospital for Women, Sydney, some years ago.

Owing to the rarity of the condition during the course of pregnancy, the numerous complications which are said to occur could hardly all come under the notice of one man, even in a lifetime of surgical work, and I have sought to embody in this article the concentrated opinions and experience of the foremost authorities on the subject and to present it in such a way that it can be readily referred to by those seeking quick information on particular points. Coupled with this method of approach are included such observations as I have been fortunate enough to make in the practice of our metropolitan obstetric hospitals.

It should be noted that the section on treatment has been written without reference to modern chemotherapy.

Even in ordinary surgical practice in which appendicectomy has become so common an operation that it is usual to find several cases on a list, there is nevertheless always an element of uncertainty that makes each case interesting. When, however, the picture is complicated by the coexistence of pregnancy, the whole outlook on the case is changed, treatment becomes complicated and clinical interest is doubled, for here we are dealing with two separate conditions, one pathological, one physiological, in their relations to two organisms, the mother and the fœtus. As will be seen later, this takes on special importance when the condition arises in the later months of pregnancy. Here we must keep in mind that in appendicitis with grave toxæmia, just as in the ordinary toxæmias of pregnancy, the fœtus may be affected by the toxins circulating in the maternal blood stream.

In a prenatal clinic patients complain frequently of vague lower abdominal pains along with malaise and other upsets common to the pregnant state. The patients are women of all ages and at various stages of their childbearing life. Most commonly, perhaps, the patient is a *primigravida* in the middle few months of pregnancy. Diagnosis of the exact cause of these various pains is often difficult, and it may be customary to administer placebos. It is in the midst of such cases, however, that we are apt to overlook the odd case which may turn out to be one of appendicitis. Lest, however, we lose perspective on the matter, let us remember the first important fact concerning appendicitis and pregnancy—that it is not a common combination. With this in mind we shall now consider the condition in fuller detail.

Incidence.

The incidence of appendicitis in women is not influenced by the occurrence or presence of pregnancy. That is, primary acute appendicitis occurs at the same rate in all women irrespective of whether a pregnancy is present or not. Pregnancy, on the other hand, aggravates the already existing case of chronic appendicitis in a remarkably uniform manner.

One reason for the exacerbation of a chronic appendicitis during pregnancy is the progressive enlargement of the uterus which by stretching kinks and previously formed adhesions encourages an inflammatory reaction. Another reason for this is the increased vascularity of the lower abdominal and pelvic organs which predisposes to more rapid congestion once inflammation has begun. The incidence is greatest in the second three months, least in the last three months, and intermediate in occurrence during the first three months of pregnancy. The reason is that during the middle three months the uterus commences to enlarge rapidly and the stretching of any preformed adhesions in the neighbourhood of the appendix becomes more violent at this time; consequently, if an already existing chronic appendicitis is going to suffer from the pressure of the enlarging uterus, it is during the second three months often, so to speak, a case of "now or never". Crossen[1] states that 80% of all cases occur during the middle three months. The incidence during actual labour is infinitesimal, and during the puerperium small.

Including all chronic cases, it is definitely established that of all women who suffer from appendicitis about 2% are also pregnant. Therefore, among the women with primary acute appendicitis a very small number will be found to be pregnant as well, so that primary acute appendicitis must be regarded as being extremely rare during the course of pregnancy.

The Symptoms and Signs of Appendicitis in Pregnancy.

In the first trimester the symptoms and signs manifest practically no difference from those occurring in appendicitis without pregnancy. With these usual symptoms and signs we are all familiar. After the third month is ended, however, the clinical picture changes. The symptoms remain relatively unaltered—the pain, nausea, vomiting, constipation—but here arises an important point: there may be a partial alteration in the usual signs owing to the changed position of the abdominal viscera or, indeed, the usual signs may be altogether absent. The reasons for this are that from the third month onwards the caecum and appendix become wholly abdominal organs and are gradually pushed higher and more laterally in the abdomen by the enlarging uterus, so that at the sixth month the appendix may lie at the level of the uppermost limit of the iliac crest, and at the eighth month two fingers' breadth higher still. Here we have the explanation for the fact that the incidence of appendicitis is highest during the second three months of pregnancy. This is because, as previously noted, most cases of appendicitis in pregnancy are exacerbations of already existing chronic cases, and the stretching of surrounding inflammatory areas becomes more violent at this time. The signs of appendicitis on which most reliance is usually placed, muscle spasm and rigidity, associated with localized deep tenderness, may be so difficult to assess, owing to the obstruction offered by the enlarged uterus to the examining hand, that they may be practically lost as an aid to diagnosis and the pain may be attributed merely to the stretching of the broad ligament by the enlarging uterus. It is in this connexion that Crossen[1] emphasizes the danger of complacency regarding complaints of minor pains in the lower part of the abdomen during the course of pregnancy. However, at this point let us recall my first observation—namely, that appendicitis is uncommon in pregnancy. The main source of danger in diagnosis is the displacement of the *caput caeci* and appendix above the pelvic brim after the third month. I have mentioned the danger of uterine enlargement; but we must not forget that rapid involution may, conversely, exaggerate the signs of an unsuspected appendicitis, even abscess, just as rapidly as, or more rapidly than, their appearance is slowed or masked by the enlargement of the uterus. In this connexion we must remember that when walling off has occurred after the third month the uterus quite often forms part of the wall, that the omentum has usually been displaced superiorly, that there is localized metritis with adhesions and that sudden involution will rupture these adhesions; if pus is present general peritonitis is then almost certain to follow.[2] Actually, appendicitis predisposes to premature, labour especially after perforation of the appendix has occurred. Premature labour is stated to occur in 40% of cases of perforated appendicitis; the sequence of events may thus be: progressive uterine enlargement, causing a recurrence of appendicitis; the formation of adhesions involving the uterine wall; rupture of the appendix, premature labour following and general peritonitis ensuing.

Diagnosis.

Diagnosis presents no special difficulty up to the end of the twelfth week, although the nausea and vomiting of pregnancy may obscure the symptoms up till this time. From the twelfth week onwards diagnosis becomes more difficult and the reasons for this are again possibly that vomiting of pregnancy masks the vomiting due to the appendiceal lesion, and also that the site of localization of the pain by the patient is changed—the site is higher in the abdomen—while, if the appendix is retrocaecal, pain may be absent. Thirdly, deep tenderness may not be elicited and rigidity may be absent. Again, the temperature is often low in relation to the pulse rate, while lastly leucocytosis is of no value unless the count is well above twelve thousand per cubic millimetre with a marked

preponderance of neutrophile cells. During labour diagnosis becomes practically impossible. In the puerperium confusion with pelvic sepsis is likely.

Aids to Diagnosis.

Firstly, inquiry must always be made for a history of previous attacks; this cannot be too greatly stressed. Secondly, the leucocyte count, if it is higher than twelve thousand per cubic centimetre, is of value. Thirdly, hyperæsthesia in Sherren's triangle can sometimes be elicited; Hamilton Bailey's method should be used.[3] Fourthly, a furred and especially a dry tongue points to a gastro-intestinal lesion, such as appendicitis, while in the early months and sometimes later tenderness on rectal examination on the right side is helpful. Crossen[1] insists that when doubt arises and a real likelihood of appendicitis exists, too much time must not be wasted in diagnosis, and exploratory operation is preferable to temporization, especially in the later months.

Differential Diagnosis.

The First Three Months.

1. *Right Ectopic Gestation.*—In unruptured ectopic gestation[2] careful examination will reveal signs of early pregnancy, but here we must remember that complete amenorrhœa is not common in extrauterine gestation. The pain is intermittent in type and unilateral.

Per vaginam uterine enlargement is discovered, and there is found in the right fornix a globular fairly firm mass which may pulsate, is mobile and extremely tender to pressure. More likely to be confused with appendicitis is a right-sided tubal abortion. The rapid onset of shock, with faintness, pallor and thready pulse of frank tubal rupture may be absent, or some of these symptoms may be absent, and when reaction has occurred over a short space of time, the rise of temperature and localized tenderness may be most misleading. Even after frank rupture such a reaction may occur, but as an offset to this difficulty shifting dulness may be present in the flank and the findings *per vaginam* are practically diagnostic. Persistent facial pallor with darkness under the eyes in spite of improvement in the colour elsewhere has proved helpful more than once. A posterior colpotomy will settle the question, unless the rupture is into the broad ligament. In appendicitis, on the other hand, there may be a history of dyspepsia and possibly iliac pain; profound shock is unusual, but may be present in acute obstructive cases, while temperature is usually elevated from the onset of the condition, the pulse is fuller in volume, and there is a leucocytosis. Rigidity and distension, seen only in the early months as a rule, are localized in early appendicitis. Distension is generalized in frank rupture of an ectopic gestation, localized, often very much, in tubal abortion. Vomiting is more unusual in ectopic gestation, while in a pelvic hæmatocœle the mass is lower as a rule than a mass due to appendicitis.

2. *Threatened Miscarriage.*—Threatened miscarriage may be more difficult to differentiate than it seems. The pain is central and intermittent, gastro-intestinal symptoms are absent, and sooner or later hæmorrhage occurs. A rise in temperature will often occur when criminal interference has taken place.

3. *Acute Salpingo-Oophoritis.*—The main aids in acute salpingo-oophoritis are as follows: (i) In acute salpingitis the pain is usually bilateral, although it may be felt more on the right side if the tip of the appendix be bound up in the inflammatory mass. In addition, there is often a history of previous pelvic disease, in which case the salpingitis may be a flare-up of a chronic tubal lesion. (ii) In appendicitis there may be no history of previous pelvic trouble, and the characteristic early radiation of the pain higher in the abdomen may be of help. There is a leucocytosis in both conditions, while in the later months the raising of the adnexæ causes confusion also.

4. *Twisting of Pedicle of Right-Sided Pelvic Tumour.*—The twisting of the pedicle of a right-sided pelvic tumour is difficult to differentiate. The general condition may be better at first in such a lesion, and pain may be intermittent and very localized. Temperature may be slow in rising. *Per vaginam* there is a palpable tumour. Obviously this applies more to the early months, although I recall a case in which a woman was delivered of a full-time fœtus and underwent laparotomy two weeks later for removal of bilateral ovarian dermoids the size of a rock melon, the left one lying in such a position that it was mistaken pre-operatively for a hydronephrosis (Dr. Gordon Lowe's case).

The Second Three Months.

In the second three months there arises the great bugbear of diagnosis—acute pyelitis. First to deal briefly with the colics and gall-bladder disease: the symptoms of these are well known, although during the later months of pregnancy the high position of the appendix may cause confusion. Pneumonia, as always, must not be forgotten.

Reverting to acute pyelitis: more excusable mistakes are made in this regard than possibly in any other condition which may be associated with pregnancy. The main symptoms of acute *pyelitis gravidarum* are right-sided (usually) lumbar pain, fever, rigors, malaise, perhaps vomiting, while pus will sooner or later appear in the urine. According to Bourne,[2] the site of the pain is commonly the right iliac fossa, and more commonly over the right ureter immediately superior to the pelvic brim; the tenderness usually corresponds to the site of the pain. When, therefore, we consider that pus may not appear in the urine for up to thirty-six hours, how can errors be avoided occasionally? Browne[4] states that the pain is more characteristically aching in type and is situated usually in the lumbar region. He admits that it is not always so, however.

In acute pyelitis the temperature is usually higher, and if the patient is observed for a sufficient time, will commence to swing. Rigors are common and early, while the pulse as a rule is less rapid in relation to the temperature than is the case in appendicitis. The general condition may appear slightly better than in an acute appendiceal lesion and the tongue will be cleaner and moist. Microscopic examination of the urine is essential, and should not be delayed. Nevertheless, cases will arise in which the appearance of pus is delayed and operation will be performed as the wisest choice (Crossen[1]). In general, most men would lean towards a diagnosis of pyelitis on account of the greater frequency of this condition. Culture of the urine, if it were possible to carry it out in time, is unreliable. In one series of thirty-four patients suffering from appendicitis complicated by pregnancy, sixteen showed *Bacillus coli communis* in the urine.

Less common conditions requiring differentiation are tubal torsion and mesenteric thrombosis. Intestinal obstruction must be remembered also.

The general rule advised by Crossen and others is to operate rather than temporize, if in real doubt.

The Last Three Months.

In the last three months, and especially in the last two, diagnosis may be extremely difficult. All the earlier difficulties are exaggerated, and during labour diagnosis may be impossible owing to the uterine contractions. It should be remembered that persistent pain may be felt in the epigastric area in severe toxæmia in the later months.

The Puerperium.

There is often a tendency to regard doubtful cases of pyrexia occurring in the puerperium as being due to sepsis. Here, however, we must recall that sepsis is not usually accompanied by pain in its early stages. The fever is higher, usually intermittent, and when pain does occur it is usually diffuse owing to diffusion of the peritoneal involvement. In one case when the patient was seen on the sixth puerperal day, although the evidence of appendicitis was slight, operation revealed a quite acutely inflamed appendix.

In puerperal salpingitis the pain is low and bilateral, and the pelvic tenderness corresponds. In one puerperal case laparotomy was done for acute lower abdominal peritonitis in which the tubes were found so inflamed that generalized purulent effusion had developed. The organisms, surprisingly, were predominantly gonococcal, and drainage was instituted with good results.

In puerperal parametritis the pain is again lower and the tenderness is localized to the fornix. In both these last conditions the tongue is cleaner and vomiting is unusual (Berkeley[3]).

Treatment.

Acute Appendicitis.

In the Early Months.—Munro Kerr[8] and Crossen advise that in all acute cases operation should be performed as though no pregnancy existed. Points to be noted are as follows.

1. The best incision is a right paramedian incision (except in very early cases). This gives good exposure, especially after the fifth month.
2. The appendix should be removed whenever possible. (Note, this will not always be possible.)
3. The uterus should be handled as little as possible.
4. If the appendix is ruptured and difficult of access and the patient's general condition is poor, the best treatment is to institute drainage for the time being, and to leave the appendix behind (Crossen,[1] Browne[4]).

During the Last Two Months.—During the last two months of pregnancy the treatment is complicated by the necessity for active obstetrical treatment. The chief point to be decided is whether the uterus should be emptied or not.

In general, if the appendix is unruptured, the uterus should not be emptied; if it is ruptured, or if there be much spread of peritoneal involvement, emptying should be carried out. Next for consideration is the manner in which the uterus is to be emptied and when. If we assume that the patient is not in labour, the first point depends upon the amount of peritoneal involvement. If the inflammation is still localized to the posterior abdominal wall, classical Cæsarean section gives good results. If it is more widely spread, the lower segment operation is safer. If the peritoneum on the uterine wall is badly involved, treatment by Porro's operation with vaginal drainage, and a tube through the right flank in addition, is recommended by Crossen.[1] In Porro's operation, following extraction of the child, the body of the uterus is removed and the stump is sutured in the abdominal wall.

1. If the appendix is unruptured and accessible and no parietal peritoneal involvement has occurred, even late in pregnancy, remove it without disturbing the uterus, and close the wound firmly. In such cases premature labour is rare and does not give trouble if it occurs.

2. In the presence of only slight peritoneal involvement, Crossen[1] recommends that the appendiceal area should be packed off first, that the child should be delivered by a lower segment Cæsarean section, followed by immediate appendicectomy after the uterine wound has been carefully protected.

3. When the appendix has ruptured and the patient is not in labour, the Cæsarean section must precede the appendicectomy. Great judgement is required, therefore, in an endeavour to assess the amount and direction of spread of peritoneal involvement. In these cases the procedure is as follows: (*a*) Empty the uterus first by the lower segment Cæsarean route. This severs the child once and for all from the influence of the toxins. Vaginal delivery following protracted labour after operation in very toxic cases increases the maternal mortality by 10%. (*b*) Secondly, remove the appendix, with suitable drainage.

4. If the peritoneum on the uterine wall is widely involved, the advantages of Porro Cæsarean section before appendicectomy are: (*a*) infected tissues are removed, (*b*) better drainage is allowed, (*c*) the results, according to available statistics, are better. Drainage is aided vaginally also in this case.

During labour, if the diagnosis is definite, and labour is in its early stages, treatment proceeds as previously outlined.

If labour has progressed far onwards, it is better to allow normal delivery to proceed and to follow it by immediate abdominal section (Crossen[1]). During labour the risk of general peritonitis is much increased. Berkeley and Bonney[3] recommended lower segment Cæsarean section and appendicectomy through the same incision, but drainage through a second flank incision.

Special difficulties of appendicectomy late in pregnancy are: (*a*) Exposure—the right paramedian incision is best. (*b*) Drainage—it is difficult to maintain the tubes in position. (*c*) The tendency to post-operative onset of labour, causing a spread of infection by dragging on the infected site by the contracting uterus, especially when pus has formed before operation. (*d*) The need for gentleness. Cases occurring late in pregnancy undoubtedly call for rapid and gentle work, as excessive handling of the uterus may be followed by dire results to the mother and possibly to the fœtus.

The objects of the lower segment Cæsarean section (when required) are: (*a*) To avoid displacement of drainage tubes, as would occur if vaginal delivery were allowed to follow operation. (*b*) To keep the route of delivery as far away as possible from the site of infection.

Post-Operative Treatment.—Ample sedation with doses of morphine adequate to the size of the patient, on a four-hourly schedule for some days, is recommended in an attempt to prevent the onset of premature labour in simple cases. More recently the administration of progesterone for the same reason has been added to the post-operative regimen at the Mayo Clinic.[10]

Chronic Appendicitis.

Regarding chronic appendicitis, most authorities are agreed that in the mild chronic cases temporizing methods may be used, according to the experience and judgement of the surgeon. In these cases, however, the patients must be constantly observed until the end of their puerperal period, no matter how early in pregnancy they come under notice.

Prognosis.

Good prognosis depends upon early diagnosis and correct treatment. When the appendix is not ruptured, its removal during pregnancy is followed by no greater mortality than after operation among non-pregnant women, and with proper post-operative care, abortion in the early months and premature labour in the later months are rare (Crossen[1]).

The mortality among all non-pregnant women suffering from acute appendicitis is stated to be 10% (Browne[4]), while among pregnant women the figure rises steeply. Schmid[7] found in a series of 486 cases of all types associated with pregnancy that the mortality was 30%; Crossen[1] finds 40% of deaths in the first six months if the appendix is perforated, and 60% in the last three months, again when perforation has occurred.

It is important to note that if abortion or premature labour follows, whether the patient is operated upon or not, the mortality is increased by 10% all round in bad cases. Hence the necessity for gentleness in handling the uterus.

The uterus is unlikely to empty itself unless it receives excessive handling during the operation or there is much peritoneal involvement of the uterine wall, but when perforation occurs in the last two months, patients rarely go to term, and in any case the uterus should be emptied under these conditions.

Reasons for the high mortality are as follow:

1. The fact that after three months the appendix becomes an upper abdominal organ, or at least ceases to be a pelvic one. Therefore, the nearer the patient is to term, the greater the risk of general peritonitis.

2. Delay in diagnosis. This in turn is due to increased difficulty after the third month and a tendency to regard the symptoms as due to pregnancy.

3. A tendency to rapid perforation and gangrene during pregnancy. Baer[5] found this in fifteen cases out of twenty-eight.

4. The risk of spontaneous termination of the pregnancy in toxic cases, and its concomitant dangers. This occurred in 12% of Schmid's[7] cases.

Prophylaxis.

Operation should be performed while conditions are favourable, if appendicitis is likely to be associated with pregnancy. That is, appendicectomy should be performed early in the treatment of married women, or of women contemplating marriage who suffer from appendicitis.

Appendicectomy should be a routine, whenever permissible, in operations upon the pelvic organs in women of child-bearing age.

A woman already pregnant, who has a previous history of chronic appendicitis, should be operated upon at the first sign of trouble if it appears to be acute (Crossen[1]).

Summary.

1. No reliable statistics are available to show how frequently appendicitis complicates pregnancy, but it is known with certainty that 2% of women with acute appendicitis are also pregnant. Eighty *per centum* of cases occur in the first six months. Appendicitis is more common in the puerperium than is commonly supposed, but is frequently overlooked (Crossen[1]).

2. Pregnancy exerts an unfavourable influence on a diseased appendix, but primary acute attacks are rare.

3. The course of the disease is rapid, and perforation may occur within a few hours, especially in the later months.[9]

4. Diagnosis becomes increasingly difficult after the sixth month.

5. Operation should be performed in cases of doubt when the patient's general condition is grave.

6. With early operation, the maternal prognosis is good, but if perforation has occurred a mortality rate of 50% must be expected in late pregnancy.[9]

7. There is little danger of abortion in simple cases, but after perforation, 50% of uteri will empty themselves, thus increasing mortality by 5%.[9]

8. In the last two months perforation is extremely dangerous both to mother and child, and Cæsarean section followed by appendicectomy is advocated as the procedure most likely to give good results. The type of Cæsarean section, however, depends entirely upon the extent of involvement of the parietal and uterine peritoneum. If involvement is very severe, Porro's operation is safest. In most other cases, the lower segment operation will be best.[9]

9. Whenever possible the diseased appendix should be removed if there is a possibility of the occurrence of pregnancy.

10. The extent to which modern chemotherapy will obviate the necessity for operative obstetric procedures awaits trial in a sufficient number of cases of the severe type.

Acknowledgement.

I am indebted to Dr. Gordon Lowe and other members of the senior surgical staff of the Royal Hospital for Women for permission to make use of clinical material from their beds.

I should also like to express gratitude to the late Dr. James Hughes for guidance in cases among patients who have come under treatment at the Mater Misericordiæ Hospital, North Sydney, while the senior members of the staff of Saint Margaret's Hospital for Women have offered much encouragement.

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Reports of Cases.

MORE FATAL CASES OF BITES OF THE TAIPAN (OXYURANUS SCUTELLATUS).

By H. FLECKER,
Cairns.

IN THE MEDICAL JOURNAL OF AUSTRALIA of August 29, 1942, at page 173, referring to the taipan, *Oxyuranus scutellatus*, Dr. C. H. Kellaway writes as follows: "The symptoms resemble those of tiger snake bite, but the only descriptions available are by laymen, and stress the rapidly fatal result of the bite." He does not state where such descriptions by laymen are to be found. However, part of this statement is scarcely fair to the contributors to the Registry of Injuries Produced by Plants and Animals in Tropical Queensland—namely, the late Dr. G. M. Sharpe, also Dr. H. S. Harper and Dr. A. M. Martell, who each contributed clinical notes of cases of bites of this snake as reported in the article "Snake Bite in Practice" in THE MEDICAL JOURNAL OF AUSTRALIA of July 6, 1940, at page 6.

Reports of some further cases, all fatal, have since been collected.

At about 5 p.m. on October 4, 1929, at Port Douglas, J.P., a tall man, fifteen stone in weight and six feet six inches in height, was bitten through the trousers on his right leg. The bite was shortly afterward attended by the ambulance attendants and a tourniquet was applied. He arrived at the Port Douglas Hospital at 5.15 p.m.—that is, within twenty minutes of the injury; he was quite conscious and was attended by Dr. D. C. C. Sword. No vomiting occurred, and he had apparently experienced no ill effects—in fact, he felt so well that at 6 p.m. he expressed a desire to return home. The first symptom was a convulsive seizure at 6.30 p.m., after which the seizures became continuous and extremely violent, and were accompanied by profuse perspiration; they continued until 10 p.m., when he died.

The reptile was unfortunately not captured at the time. Some time later, the victim's brother killed a large brown snake in the same cane-field and stated that he was sure that it was the same one. It was said to be seven feet six inches long. In a letter to the Director of the Queensland Museum, dated July 25, 1931, Dr. Sword wrote as follows: "I am sending down the head only of a brown snake brought to me because its captor thinks it is similar to one that caused a death here last year. (Death occurred about five hours after the bite, with symptoms of bulbar paralysis.)" The Director, Mr. H. A. Longman reports as follows: "The head is evidently *Oxyuranus scutellatus* Peters. This snake was first described from Rockhampton and it has also been recorded from Papua. This is presumably the Taipan, described by Kinghorn as *Oxyuranus maclennani*. . . . Dr. Donald Thomson (P.Z.S., 1933, p. 856), who has actually handled Taipans, records *O. maclennani* as a synonym of *O. scutellatus* (originally described by Peters as a Pseudechis). He notes 'O. *scutellatus* is undoubtedly the largest and probably the most venomous snake found in Australia'."

Dr. Sword also furnishes some notes concerning a case of snake bite in which death occurred while he was at Mossman.

> As far as I can remember, it was in 1931, and the victim was a "new chum" Italian who worked for his brother at a cane farm in the Saltwater district. He was bitten while cutting cane tops for horse feed one morning, and apparently felt no ill effects at the time, as nothing was done about getting him into town to see me. He did come in to Mossman later in the morning,

apparently to interview some official at the mill (possibly the manager), as he began to feel ill while awaiting outside the manager's office, and I think it was Miss L., the Secretary of the mill, who noted this and rang for the ambulance to transport him to the district hospital, where I saw him at about 10 a.m. I think. I remember that vomiting was a symptom when he was admitted, also paresis of tongue and pharyngeal muscles. He later had convulsions and I think died in about two hours from the time of admission. I was not able to find out much about the snake that had bitten him, except that he had told his brother that it was a big brown one, and that he had disturbed it in the growing cane. The site of the bite was on the leg, but I cannot recollect exactly where.

W., a female half-caste aboriginal, aged twenty years, on returning from the picture show at 11 p.m. on November 12, 1943, a bright, clear, moonlight night, removed her shoes, and in company with her brother and another girl walked along Waters Street, Cairns; a snake, apparently brown in colour, advanced toward her and bit her on the dorsal aspect of the foot. The victim immediately ran onward past one or two houses through the open gate of her own home and collapsed within ninety seconds of being bitten. She became unconscious immediately and went into convulsions. She was promptly driven by the ambulance to the Cairns General Hospital, where she died soon afterwards. Dr. A. M. Langán, who made the post-mortem examination, reports that death was due to asphyxia. Blood was issuing from the mouth and nose. There was no fracture of the skull or other evident abnormality. Although the locality is well within the city of Cairns, it is not far removed from some swamp lands, and probably the reptile took refuge there. In all probability this was the taipan, although the snake was not captured.

Sir Raphael Cilento, in his book "Tropical Diseases in Australasia", referring to the taipan (it is called giant brown snake of North Queensland, although its colour is greenish rather than brown), reports as follows: "Fortunately it occurs in remote districts where its opportunities of attacking man are few." This statement will surely need modification in view of actual experience, for it would seem that this reptile, if it does not supersede the death adder, *Acanthophis antarctica*, is surely second only in importance to this snake in coastal tropical Queensland.

Dr. C. H. Kellaway, in The Medical Journal of Australia of August 29, 1942, writes as follows: "Finally, there are far too few carefully observed and completely recorded cases of snake bite in Australian medical literature to afford a really accurate definition of the symptomatology of the bite of each species." It has been the aim of the Registry of Injuries Produced by Plants and Animals in Tropical Queensland to record all such clinical details, and this organization has particularly stressed the desirability of endeavouring to secure every reptile or other agent responsible for injuries so that these may be satisfactorily determined.

OCCLUSION OF THE ABDOMINAL AORTA BY ANTE-MORTEM THROMBOSIS.

By J. B. Cleland, M.D.,
Marks Professor of Pathology, University of Adelaide.

In The Medical Journal of Australia of March 11, 1944, Dr. D. J. Giblin[1] describes "A Case of Aortic Thrombosis". He gives an interesting *résumé* of this condition more particularly from the clinical standpoint and mentions that it may be due either to embolism or to thrombosis *in situ*. Experiences in the autopsy room at the Royal Adelaide Hospital show that this condition may occur without giving rise to obvious symptoms referable to it. If the occlusion is gradual, apparently a collateral circulation may be successfully established. Ante-mortem thromboses are not uncommon over atheromatous patches in the lower part of the abdominal aorta in elderly persons. They usually form thin sheets of a greyish flesh-colour, the exposed surface sometimes presenting a corrugated appearance, and seem to be composed chiefly of agglutinated platelets. These ante-mortem thromboses were sufficiently obvious to be included in the post-mortem summaries in eleven cases during the last 1,000 post-mortem examinations—that is, they were present in 1·1%. Occasionally these clots may be added to until the lumen is seriously interfered with, as in the last of the four cases summarized below. Occasionally the lumen may be practically or quite occluded, similar occlusion extending into the adjacent common iliac arteries. In one case detailed below the ante-mortem clot extended up to the level of the renal arteries, and it was thought that death might have resulted from interference with the blood supply to the kidneys, which gave rise to the anuric type of uræmia.

Case I.

This subject was a man, aged fifty-nine years, who had been admitted to hospital suffering from shortness of breath, which had been present intermittently for about twenty years, and which had lately become worse. No œdema of the ankles had occurred, but he was cyanosed. Five days after his admission to hospital he suddenly became more short of breath and more cyanosed and then irrational, with a dry, coated tongue and symptoms suggestive of uræmia. His temperature was subnormal throughout. During the five days in hospital he passed 12, 16, 10, 10 and 6 ounces of urine respectively; the specific gravity varied from 1·010 to 1·034. At the post-mortem examination he was found to have an hypertrophied and dilated heart. The lower part of the abdominal aorta was nearly filled by a pale ante-mortem clot; the centre was occupied by some red clot, and there appeared to be a small lumen. Both common iliac arteries were filled with old ante-mortem clots on atheromatous areas. The clot in the abdominal aorta extended to just above the level of the renal arteries, whose blood supply seemed to have been interfered with. In this case it was thought that the patient died from uræmia from this interference with the blood supply.

Case II.

This man was aged forty-five years, and had been operated on for varicose veins a month before his final admission to hospital. He was admitted suffering from stabbing pains in the renal angle and over the liver area, and from hæmoptysis of blood. He collapsed and died a month later. At autopsy death was attributed to massive pulmonary embolism, ante-mortem clots still being present in the left external iliac vein and attached to the side of the right common iliac vein. The abdominal aorta was found to be completely occluded by an old clot, now pale and honey-coloured and partly recanalized, but with no effective channel. The right common iliac artery was filled with a pale clot and the left with a red clot. In the history of this case there seems nothing to indicate that symptoms were caused by this occlusion. The clinical notes do not state whether atheroma was present to any extent, though a patch was noticed in the circumflex branch of the left coronary artery. The subject was young to have advanced atheroma.

Case III.

The subject was a man, aged fifty-nine years, who had been admitted to hospital suffering from senile gangrene of one foot and cardiac failure The leg was amputated; but the patient died three days later. He was found to have extensive thrombosis with recanalization in the lower half of the abdominal aorta and both iliac vessels. The right femoral artery was completely blocked. Thrombosis had extended to the inferior mesenteric artery, leading to paralytic ileus. In this case the symptoms and signs were clearly associated with the condition in the aorta, which had been obviously of slow formation, and the collateral blood supply had sufficed for a time.

Case IV.

This subject was a man, aged sixty-two years, who had been admitted to hospital a few weeks previously complaining of abdominal discomfort and pruritus. He was discharged, but soon readmitted, "shaking all over" and demented. The blood urea nitrogen content was 140 milligrammes per cubic centimetre. The post-mortem examination showed the kidneys to be dark in colour, but otherwise normal; the cerebral vessels were atheromatous, and small areas of softening were found in the brain. A large ante-mortem clot, 1·25 inches (3·1 centimetres) in length, formed on an atheromatous area, nearly occluded the lumen of the aorta an inch or so above its bifurcation, the adjacent wall of the aorta being calcified. No symptoms seem to have been attributable to this obstruction.

Reference.

(1) D. J. Giblin: "A Case of Aortic Thrombosis", The Medical Journal of Australia, March 11, 1944, page 215.

Reviews.

TUBERCULOSIS OF THE EAR, NOSE AND THROAT.

Dr. Mervin C. Myerson, in his book "Tuberculosis of the Ear, Nose and Throat: Including the Larynx, the Trachea and the Bronchi", has summarized in a very comprehensive way 1,000 consecutive cases of laryngeal tuberculosis which occurred in 10,675 cases of pulmonary tuberculosis.[1] From such an experience as the author has had, the reader will expect to find much useful information in this publication, and he will not be disappointed.

Tuberculosis in Australia has not yet reached the proportions found in older and more densely populated countries, but it is, however, on the increase, and for this reason, if for no other, this publication should be well received by the medical profession in Australia.

The author is very decided that primary infection of the larynx does not occur, but is always secondary to pulmonary infection, and points out that although the physical signs and X-ray evidence may be lacking in a given case, this does not prove the non-existence of pulmonary disease. His experience has shown him that it does not necessarily require extensive pulmonary involvement for the production of laryngeal tuberculosis. We feel that he is quite right in stating that although there are opportunities for the study of tuberculosis of the larynx, relatively few laryngologists have interest in this condition. It is the conditions of patients' work rather than the type of work done that are more important predisposing causes of laryngeal tuberculosis. The author is of the opinion that there is no connexion between previous disease of the larynx and tuberculous condition of that organ. It is not the lowered resistance of the laryngeal structures, but the sudden activation of a local pulmonary focus disseminating tubercle bacilli which is the primary factor in its production. He points out that it is not uncommon to find syphilis associated with tuberculosis and that among diabetic patients the incidence of tuberculosis is about five times greater than among non-diabetics. He discusses the pathway of infection to the larynx and points out that most patients with laryngeal tuberculosis have bilateral pulmonary disease, whereas relatively few have unilateral involvement. He is strongly of the opinion that the larynx becomes infected by way of the blood stream, and he states that symptoms of the laryngeal involvement may be absent even when there is active tuberculosis, and on the other hand laryngeal symptoms may be the first indication of tuberculosis of the lungs. He emphasizes that the diagnosis in the early stages of the disease of the larynx may be especially difficult.

In dealing with prognosis the author stresses the fact that a successful pneumothorax usually prevents laryngeal involvement, and all authorities will agree with him that there is no satisfactory treatment for the tuberculous larynx and that it still remains a difficult problem. Speaking generally, he holds that active disease is managed usually by inactive measures, whilst inactive disease is managed by active measures. The author gives a very good description of, and illustrations for, injection of the superior laryngeal nerve. With other authorities, past and present, he considers that absolute silence is the most important measure in the treatment of tuberculous laryngitis.

He makes the condition for the diagnosis of lupus about the mouth, pharynx and larynx that it must be associated with nasal and skin manifestations, whereas tuberculosis of the larynx resembling lupus and not associated with lesions of the skin and nasal regions he classifies as lupoid.

Regarding tracheotomy, he holds that it has an important place in the treatment of destructive tuberculous laryngitis, and his statistics show that relatively few patients with laryngeal complications requiring tracheotomy have serious pulmonary disease. He also discountenances the impression that all tracheotomy wounds in tuberculous persons become infected with the specific organism.

In dealing with tuberculosis of the middle ear, the author points out the importance of noting swelling of the pre-auricular glands, as this may occur early, and therefore involvement may be the first indication of the tuberculous nature of *otitis media*. This in turn is followed by enlargement of the post-auricular glands. Facial paralysis occurs much more often in tuberculous ears than in the usual type of infection. The author maintains that radical surgery is the best treatment of tuberculosis of the temporal bone and that this should be done preferably under local anæsthesia assisted if necessary by the intravenous use of an anæsthetic agent. The author considers that tuberculosis of the temporal bone is mainly a blood-borne infection, but it may also be conveyed direct through contaminated fingers and articles *et cetera*.

In dealing with tuberculosis of the nose and upper respiratory passages, the author expresses the opinion that this cannot be considered primary unless confirmation is furnished by autopsy. Most nasal lesions are secondary to extrapulmonary foci, and such foci are not easily found. At times pulmonary disease cannot be demonstrated.

In dealing with the tonsils, he states that the frequency of tuberculosis of these structures is greater than has been suspected, and as a rule it is found more often at autopsy than during life. He also states that the tonsils are sometimes infected with the bacillus of bovine tuberculosis in localities where milk is not pasteurized, and that sometimes in a small percentage of cases the infection is of mixed bovine and human types found in the tonsillar crypts without any demonstrable lesions. With rare exceptions tonsillar infection is secondary to disease elsewhere.

This is a first-class book and should be diligently read, not only by specialists in tuberculosis of the lung, but by all physicians and by ear, nose and throat specialists and pulmonary endoscopists. It is a valuable contribution to our knowledge on the subject.

The author has made some errors in the description of Figures 10, 11, 19, 21 and 37 when he refers to sides of the larynx as seen by mirror reflection. As these no doubt will be corrected in later editions, they are only minor adverse criticisms.

[1] "Tuberculosis of the Ear, Nose and Throat: Including the Larynx, the Trachea and the Bronchi", by Mervin C. Myerson, M.D.; 1944. Springfield: Charles C. Thomas. 9" × 5¾", pp. 298, with illustrations. Price: $5.50, postpaid.

VIRUS DISEASES.

The aim of Gustav Seiffert in writing "Virus Diseases in Man, Animal and Plant" was to furnish an introduction to the virus problem.[1] The first section deals with "vira" in general. Then follow summaries of articles dealing with 63 diseases of man and animals. Virus diseases of insects and plants are mentioned very briefly. A section is devoted to methods of virus investigation. The book is a rather crude translation, presumably from German. Its subtitle is "A Survey and Reports Covering the Major Research Work Done during the Last Decade", but unfortunately there has been much delay in its publication. The "last decade" appears to be 1927-1937; there are very few references to articles of a later date. This detracts very much from the usefulness of the book, for more recent and much fuller surveys of virus diseases are now available.

[1] "Virus Diseases in Man, Animal and Plant", by Gustav Seiffert; 1944. New York: Philosophical Library. 9" × 5¾", pp. 340. Price: $5.00.

TWO BOOKS ON PROGRESS IN MEDICINE.

New medical work is continually appearing all over the world. The problem of covering it is responsible for a number of special productions which appear at regular intervals like the "Medical Annual", or irregularly as do the "Recent Advances" volumes. Of this latter class are the two books under consideration—Beaumont and Dodds's "Recent Advances in Medicine"[2] and "Advances in Internal Medicine"[3] edited by J. Murray Steele; the first British and the second American.

The two books are of entirely different plan. That of Beaumont and Dodds, it is almost unnecessary to state, is the joint work of two distinguished workers. Beaumont is the clinician and Dodds the biochemist, and the result is a happy mingling of the two sides of every question considered. The American book, on the other hand, is a collection of separate articles by various authorities—each

[2] "Recent Advances in Medicine: Clinical Laboratory Therapeutic", by G. E. Beaumont, M.A., D.M. (Oxon.), F.R.C.P., D.P.H. (London), and E. C. Dodds, M.V.O., D.Sc., Ph.D., M.D., F.R.C.P., F.I.C., F.R.S. (Edinburgh), F.R.S.; Eleventh Edition, 1943. London: J. and A. Churchill Limited. 8" × 5¼", pp. 424, with 43 illustrations. Price: 18s.

[3] "Advances in Internal Medicine", edited by J. Murray Steele, M.D., *et alii*; Volume I; 1942. New York: Interscience Publishers, Incorporated. 9" × 6", pp. 302, with illustrations and diagrams. Price: $4.50.

more or less supreme in his own branch—but with no attempt at coordination.

To take the English book first: there are the features which have always made it so useful as a rapid review of new ideas, but naturally with each edition there are sections which disappear and new ones which come in. That the book is well up to date is shown by the list of new subjects mentioned in the preface, which includes the use of penicillin for infections, and thymectomy in *myasthenia gravis*. It is questionable, on the other hand, whether pneumothorax and bronchography are worth retaining in view of their now being standard procedures—to be found described in many other text-books. In the reference to bronchography the necessity for an oil of very high quality is not emphasized, nor is it even suggested that some oils have produced very grave damage after injection. The war has been responsible for the appearance of some new material—the crush syndrome, blast injuries and plasma transfusion are examples.

The section on the sulphonamides is sufficiently up to date to include sulphamethazamine and all the well-known preparations.

While much of the chapter on heart conditions including electrocardiography is hardly new, it does present a great deal of knowledge in a very handy form. Much the same may be said of the chapter on hepatic investigation. But it is in dealing with the sex hormones that the British book shows such an outstanding superiority. This is, of course, a field in which Professor Dodds has made such important contributions. To the ordinary reader he gives as clear and wide an account as is generally available apart from special works. He does, perhaps, hardly do justice to the value of the work in cancer of the prostate—which later work has shown to be so momentous, nor does he proclaim as he has done elsewhere that this success was the result of pure abstract investigation—"pure science of no use to anyone".

The American book with its entirely different plan is naturally somewhat unequal.

Probably the two articles which will most interest the ordinary reader are that on the Miller-Abbott methods in intestinal obstruction—including the use of the intestinal tube by Osler Abbott himself—and that on infections of the urinary tract by Lowell A. Rantz. The former gives in detail and lucid arrangement the theory and practice of these methods which have constituted the greatest life-saving advances in abdominal surgery of recent years. To those who have only read the original articles, scattered as they are through various journals with the comments and additions made by others, this article by an original worker gives the reader an opportunity to become master of the subject. Not least important is a section on "difficulties", for at first reading the procedure seems so simple that it may be entered on too lightly.

But Dr. Abbott's article deals with the use of the tube, not only as a therapeutic, but as an investigational weapon, and here, to those not actually engaged in surgery, the section on diagnosis will be quite the most interesting. There are six and a half clearly written and well-illustrated pages in this section, and the author can justifiably claim that among the tube's other advantages the patient is spared the stormy convalescence that so often follows blind operative interference. Treatment will be more familiar to most readers, for, as the new weapon against intestinal obstruction from whatever cause, the Miller-Abbott tube is in use by every abdominal surgeon and daily its application is increasing. For this chapter alone the book is worth buying.

In the chapter on urinary infections much information is collected that many clinicians have felt indefinitely, but were unable to formulate exactly. They may be inclined to say, "But we know all this", but closer reading will reveal that there is much that they do not know. Actually these urinary infections are so common, so frequently mixed, so dangerous in their final effects and, above all, so resistant to treatment, that the author's summary is most valuable.

Of the remaining articles, that on the sulphonamides is exhaustive, and so far as any such article can be, up to date. The section on *Hæmophilus influenzæ* meningitis quotes the work of Alexander with rabbit serum combined with sulphadiazine—a procedure now possible in Australia.

There is a good review of epidemic influenza, an article on nephrosis by Farr which leaves us still asking, "Is there a true entity, nephrosis?", and a chapter on riboflavin deficiency which is most interesting, but so far of little application in this country.

Of the longer articles, one on insulin by Lavietes is much more than a mere study of insulin—it is a summary of present-day views on both treatment and pathology, and it is a very good summary.

Many readers will turn to the excellent review of hypertension in the hope of finding something favourable in treatment. They will be doomed to disappointment. The work of two men, Page and Corcoran, who, working in the Lilly Laboratory for Clinical Research at the Indianapolis City Hospital, have been most responsible for the work on renin and other tissue extracts, is described at length. Unfortunately, no great success is claimed for these substances in treatment.

The review of surgical treatment is equally candid and disappointing. Actually and rather surprisingly, thiocyanate treatment is held up as the most promising form of palliative treatment, but insistence is laid on the absolute necessity for laboratory control.

There is an article on sympathetic nervous control of the peripheral vascular system which, though short, is full of meat. It contains little new material, but the known facts are well summarized.

Enough has been written to show that this is a most absorbing and stimulating book. We can only regret both its price and its scarcity. Printing and get-up show no war effects.

GAS AND AIR ANALGESIA.

A PERUSAL of the second edition of Minnitt's small book on gas and air analgesia for obstetrics and minor surgery does not encourage any modification of the guarded opinions expressed about the method in these columns some years ago.[1] This edition is in very abridged form, and while admirably brief and compact, it fails to substantiate what seem to be the enthusiastic claims of the author.

Despite adequate trials, gas and air analgesia has never achieved popularity in this country. Gas and oxygen or ether and air analgesia are preferred here, because of their greater efficiency and safety. A great objection to gas and air is the relatively low oxygen tension available to the patient—about 11% during the inhalations. This may not matter much while these are intermittent, but when continuous (as Minnitt advocates), both mother and infant are exposed to serious dangers. Grave risk would attend the supplementary use of chloroform or trichlorethylene in such circumstances. Nevertheless, with suitable training, gas and air analgesia is a safe and practical method in the domiciliary practice of midwives, a point on which Minnitt lays great stress.

The dubious merits of air and gas analgesia, apart from its use in obstetrics as mentioned, cannot be regarded as an adequate compensation for the painstaking care and enthusiasm devoted to it by its originator.

THE CARE OF TUBERCULOSIS IN THE HOME.

DR. JAMES MAXWELL is almost apologetic for his book on "The Care of Tuberculosis in the Home". "It must not be understood", he writes, "that a method is put forward by which most patients can short-circuit sanatorium treatment. The sanatorium is and must remain the stock treatment for the great majority of cases." It is unfortunately true that many sufferers from consumption still receive "stock treatment" rather than individual treatment based on the removal of mental and physical stresses which may have led up to their decline together with energetic local treatment, where necessary, of the damaged lung or lungs. There is "no place like home", provided that the patient can be happy and well cared for there and that his presence is not a menace to the health of young people. Dr. Maxwell gives an account in simple language, which a patient may easily understand, of the natural history of tuberculosis and of its "stock" treatment. The medical reader may see something incongruous in the author's photographs of Swiss chalets constructed in very suburban back yards. In the chapter on the "return to freedom" there is discussion of the resumption of sports, such as bowls, croquet and golf, but no mention is made of the return to domestic life and household duties.

[1] "Gas and Air Analgesia", by R. J. Minnitt, M.D. (Liverpool), D.A. (R.C.P. and S. Eng.); Second Edition; 1944. London: Baillière, Tindall and Cox. 6¼" × 4", pp. 80, with illustrations. Price: 5s. net.

[2] "The Care of Tuberculosis in the Home", by James Maxwell, M.D. (London), F.R.C.P. (London); 1943. London: Hodder and Stoughton. 8¼" × 5¼", pp. 115, with four illustrations and two diagrams. Price: 7s. 6d. net.

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MAN AND HIS WORK: VARIATIONS OF OUTPUT IN INDUSTRY.

IN spite of all that has been spoken and written on the subject in recent years, there is still lacking, even among the so-called leaders of the profession, a full appreciation of the attitude that should be adopted by medicine to industry and its workers and to other aspects of sociology. This default in appreciation is curious and can be compared only to what is done by the big bird who buries his head in the sand at the approach of something he does not like or does not understand. The worst of it is that the "something" does not stop in spite of the headless body in its path. It is surely better to face the new arrival, especially if it gives rise to apprehension, to learn all that can be learned about it and to shape it to a useful end—in other words, it is better to have a useful weapon than to stand in fear of a menace. From one point of view this may be called expediency, but medicine has to forge weapons and to use them for the ultimate good of the community in which its lot is cast. When the Industrial Health Research Board was formed in Great Britain it was formed that the welfare of the people might be established and their health maintained. Its terms of reference are a challenge to those who would prefer to leave medical sociology alone:

> To advise and assist the Medical Research Council in promoting scientific investigations into problems of health among workers, including occupational and environmental factors in the causation of ill-health and disease, and the relation of methods and conditions of work to the functions and efficiency of body and mind; and in making known such results of these researches as are capable of useful application to practical needs.

The board consists of a chairman, twelve members and a secretary. Eight of the twelve members have medical qualifications; one of the remaining four is a psychologist, one is an engineering and employers' representative, one is a statistician and epidemiologist, and one is a trades unionist. The secretary is a medical man; the president is not. This board of highly qualified persons has issued a report entitled "A Study of Variations of Output".[1] The study has been made and the report has been prepared by S. Wyatt, D.Sc., and he has been assisted by R. Marriott, W. M. Dawson, D. E. R. Hughes and F. G. L. Stock.

No one will deny that the maintenance of output in industry is of the greatest importance to every member of the community while the country is at war. But industrial medical officers must take an interest in the subject apart from the war because output, hours of work, fatigue, and the maintenance of a high standard of health are inseparably woven together. Doctors need not concern themselves with the minutiæ of the financial arrangements of industry. What matters to them as doctors is that people who work for a living, whether their work is more manual than mental or *vice versa*, shall have enough money to provide for themselves and their families in such a way that they will be able to lead happy, healthy and useful lives without constant fear of privation or disease. To this end man must do enough work, but not too much. We know that if a man works too much he becomes stale, his output suffers, and he really achieves nothing by his overwork. At the same time, because of his fatigue he is more likely to meet with accident, his body may become a prey to disease and he becomes an unpleasant companion to those among whom he lives and works. If a man does not work hard enough while he is supposed to be working, the business or industrial undertaking with which he works is likely to suffer. This may not seem to matter much to him and he may be able to "get away with" his slackness. It would be foolish, however, to deny that such a course of action is likely to have a bad effect on the character of the individual concerned. When many persons act in the same way the community is bound to suffer in the long run. Of course, if statutory hours of work can be reduced, if the hours of work are sufficient for the industry, if the social economy is so planned that industry can pay satisfactory wages for short hours, and if the individual is prepared to give of his best while he is working, then we have a state of affairs much to be desired, a state of affairs in which man will be able to use his leisure in such a way that health of the body will be assured and the storehouse of the mind replenished. Incidentally Australians would do well to remember that in the immediate post-war years our well-being will depend on the way in which we put our backs into the work that will need to be done.

Returning to Wyatt's investigation, we read in the preface that it has been firmly established that, except as a temporary emergency measure, working hours in manual operations involving a fair amount of physical effort should not exceed sixty to sixty-five hours per week for men and fifty-five to sixty per week for women. Many persons hold that if the greatest efficiency is to be achieved, working hours should be reduced below these limits. The investigation described by Wyatt was undertaken in an attempt "to find out, under war conditions, whether reduction of the length of the working week within whatever limits were found practicable, would normally lead to an equal or increased output". The investigation was planned on the assumption that it would be possible to find in each factory a representative group of about 200 fully experienced workers in different sections or departments. It was assumed also that it would be possible to measure the output of each individual during a period of four to six weeks before the reduction in hours and for a period

[1] "A Study of Variations in Output", by S. Wyatt, assisted by R. Marriott, W. M. Dawson, D. E. R. Hughes and F. G. L. Stock; Emergency Report Number 5 of the Industrial Health Research Board, Medical Research Council; 1944. London: His Majesty's Stationery Office. 9½" × 6", pp. 16. Price: 4d. net.

of at least twelve weeks after the reduction. An approximation to these conditions was found in four factories; in another three factories changes in the type of work made it necessary to use group piece-work earnings as the measure of output. The average number of hours worked in the seven factories per week before and after reduction are set out in a table. The two-shift system operated in all the factories except in respect of female workers in two factories, and these worked three shifts a day. The male groups in the seven factories worked before reduction for hours that varied between 65·4 and 56·2 per week; the percentage reduction of hours varied from 11·5 to 3·0. The females in the several factories worked before the reduction in hours for periods that varied between 59·1 and 45·0 hours; the percentage reduction of hours varied between 8·0 and 0·7. Except in one factory, in which the hours for male workers were reduced from 58·6 a week to 53·9, all the output results in the investigation refer to women. In two of the factories the men affected by the reduction in hours were employed mainly in setting up and keeping in repair the machines operated by women. It therefore seemed likely that the effects of shorter hours for men might be reflected in a higher machine efficiency for women. The output is recorded in respect of 21 groups, five of which comprised male workers. In six of the groups a decrease in output was noted after reduction of hours (only one of the five groups of males showed a decrease); in all the rest there was an increase in output. The average alteration for the whole 21 groups showed an hourly increase of output of 4·1% for the twelve weeks following the reduction in hours of work. The increase was most pronounced in the last four weeks of the twelve-week period. The conclusion was reached that the changes in output were not due entirely to the effects of shorter hours of work; close inquiry showed that the results were affected by other factors. In only three of the 21 groups was it possible to infer with some degree of certainty that the hourly output increased as a result of the shorter working hours. At least six other groups of influences are stated to have a direct, favourable or unfavourable effect on output. These are: changes in size, shape or other features in the design of the product; mechanical breakdowns and variability in the material which has to be worked; flow of working material; technical improvements in the design of machines used; changes in the general layout of work; personal factors. Of these six groups of conditions, the two which "may have a predominating influence" are changes in the design or type of product and alterations of detail in the machines employed. In view of these findings it is important to note that the Industrial Health Research Board does not present this report as a final investigation, but rather as one showing the great difficulties in making an adequately controlled study of this kind. The board points out that if everybody admits that planning and control of the means of work (machines and their layout) and of the design of the product are of very great importance, exceedingly little has nevertheless been done about it. It is claimed that such planning and designing will produce their most favourable results only if adequate account is taken of those physiological and psychological capacities which are naturally the most widely distributed in the working group. Two observations in the report must be mentioned. The first is the suggestion that absence from work resulting from domestic preoccupations (to a large extent unavoidable where married women are concerned) should be controlled rather than haphazard. The second is the statement that the most successful results have been obtained in factories where both the management and the shop stewards have been able and willing to understand and respect each other's rights and difficulties. This means that the question of human relationships lies at the root of the whole matter, and there is no doubt that in industries large enough to have their own medical organization, the industrial medical officer can wield an enormous influence for good if he is a man of the right type and gains the confidence of the workers. He can, *inter alia*, by precept and in his own bearing proclaim the dignity of work. This subtle kind of teaching may well be as important as the further "comprehensive controlled investigation" which the Industrial Health Research Board foreshadows.

Current Comment.

THE INCIDENCE OF RICKETS IN WARM COUNTRIES.

It is known that statistics relating to the frequency of rickets in children are not very reliable, for the diagnostic standards vary with different workers. Probably the figures for severe rickets are reliable, as the diagnosis is simple, but lesser grades of this deficiency state are also important. R. Klasmar, writing on rickets as studied in Professor Kligler's department in the Hebrew University in Jerusalem, draws attention to the statement of Hess, that rickets occurs as frequently in the warmer countries as in the colder.[1] Of course, it is not maintained that climatic conditions alone are important, or that abundant insolation alone will protect a child population from rickets. But Klasmer brings forward figures to prove that in a country like Palestine with almost excessive solar radiation rickets is still of frequent occurrence. His total percentage is 27·6 among 1,000 children examined, a figure considerably at variance with another estimate quoted for children in Jerusalem, only 6%.

Klasmer's research was undertaken in order to estimate the value of determinations of the phosphatase activity of the serum in the diagnosis of rickets. He considered that it would be helpful to check the phosphatase figures against clinical and radiological data, and thus he hoped to obtain some measure of the frequency of the milder forms of the disease. One drawback of the method lies in the technical performance of the test, for variations in phosphatase estimations are known often to be considerable. A micro method was employed, and duplicate examinations were made in 98 cases to test the accuracy of the method. Even so, differences up to 12% occurred in over half the cases.

The norm for phosphatase activity for children was estimated by utilizing the figures obtained from the serum of 320 children between six and thirty months of age who appeared quite healthy. The mean value for these was over nine units, and the normal range between 5·59 and 15·0 units. Further details of the figures will be found in Klasmer's article. In general, active rickets is accompanied by an increase in the phosphatase activity of the serum, but it does not follow that the converse is true. It was found, however, that in cases in which other evidence of rickets was conclusive, the rise of serum phosphatase activity was usually the earliest sign. The clinical evidence is not always easy to assess. Severe active rickets was rarely found in this research. It is interesting to learn that the classic "rosary" was only seen five times. Skeletal deformities were not necessarily accepted as proof of rickets; further clinical evidence was required, such as recent origin or recent deterioration. In some cases the

[1] *American Journal of Diseases of Children*, May, 1944.

clinical evidence at first was slender, but further observation and especially the results of appropriate treatment confirmed the diagnosis. A high value for the serum phosphatase was usually found in these cases.

The radiological studies were unfortunately hampered by cost and scarcity of the materials. However, a sufficient number of films was taken to establish a correlation between the variations in phosphatase activity and the different types of rickets.

The mathematical consideration of the results shows what one might expect, that the variable factors in such an inquiry are considerable. It is still far from easy to make the diagnosis of rickets in young children: as in all medical problems it is the individual case that causes most difficulty. However, it is simple to take the necessary measures for cure, even if the diagnosis is not quite obvious.

Estimation of the serum phosphatase appears to be a more delicate method of assessing minor aberrations of calcification of bone, and the value of work like this lies in its indication that we must not be satisfied to exclude rickets simply because no striking clinical or radiographic evidence is found in individual cases. The important thing to realize is that even in countries like Australia favoured by sunlight and excellent dietetic potentialities, rickets occurs. But even though diagnosis may be sometimes tentative, the treatment is simple and positive in early or slight cases and in no suspicious case should the necessary measures be neglected.

INSULIN RESISTANCE.

IT is fortunate that insulin is not a good antigen, for if antibodies to insulin could easily be built up the treatment of diabetes would be very difficult. A priori it is perhaps not to be expected that this would often happen, but there are curious biological reactions known to occur in the body which tend to be inimical to its well-being. For instance, it is not easy to see why the Rh factor should interpose its influence with such occasional destructive effect on infants, before and after birth. Similarly, the phenomenon of insulin resistance provides us with a curious biological riddle. Insulin sensitivity, in the sense in which the term is usually employed, is only a minor annoyance in many cases, and the local reactions and the occasional general reactions do not usually prevent the usual response expected from the insulin. Changes from one type of insulin to another, or merely patience will usually resolve this difficulty. But insulin resistance is more awkward, since an occasional diabetic patient becomes refractory to insulin and requires huge doses to control the disease.

Jacob Lerman, who has published some studies on the immunological aspects of insulin resistance, quotes an illustrative case in the literature which sets forth the problem clearly.[1] This patient showed evidence of insulin sensitivity on first beginning treatment, and had troublesome local reactions and general urticaria, but later, as these skin manifestations disappeared, became resistant to the action of the insulin. The patient's serum was tested for precipitins, but none were found. On the other hand other cases are reported in which antibodies to insulin could be demonstrated in the blood serum, and in some instances passive transfer of antibodies could be accomplished. A curious feature is that the blood serum of such patients did not inhibit the usual effect of insulin in animals, though Lerman and others have produced proof that this property of the antibodies to insulin could sometimes be demonstrated. In the present research Lerman examined the blood from six patients with insulin resistance for the presence of insulin antibodies, using normal and also non-resistant diabetics as controls. Analysing his results, Lerman concludes that the presence of antibodies to insulin appears to be causally related to the phenomenon of insulin resistance, and that such antibodies are anti-hormonic in nature. He points out that various types of antibody are present, and that all types are not found in all cases; further, that their concentration in the serum varies from time to time. As insulin resistance decreases in degree, so the antibodies disappear.

The most important conclusion to be drawn from work of this nature is that repeated administration of insulin tends to bring about desensitization, or perhaps we should say to lessen the production of the obstructive antibodies. In this way, persistence in insulin therapy will bring its own reward in the care of insulin resistance. Lerman believes that the worst thing one could do in such cases is to administer insulin at infrequent intervals, as such a procedure would tend to enhance and not to diminish antibody production. A further point of interest is what happens to a patient who has been mildly diabetic, who has proved to be insulin-resistant, and finally has responded to insulin. In several cases collected in this paper the amount of insulin required to control the disease finally was 50 to 60 units per day. Lerman wonders whether they have become "total" diabetics, and if so, whether 50 to 60 units a day represents the amount normally required by the body of the normal person. This opens up an interesting question, but more important is the conclusion from this study that when insulin resistance is encountered in diabetics it should not be assumed that it is fruitless to continue with huge doses of insulin. Rather it should be hoped that persistence with the injections will ultimately overcome the anti-hormonic zeal of the body fluids and allow the employment of a reasonable dose of insulin, much to the comfort of the patient.

[1] *The American Journal of the Medical Sciences*, March, 1944.

THE TREATMENT OF "BATTLE REACTION".

SOMETHING new in the way of treatment of psychoneurotic disorders has been employed recently by Robert G. Heath and Florence Powdermaker.[1] They note that "the symptoms shown in certain cases of so-called traumatic war neurosis reflect a clear-cut picture of autonomic nervous system imbalance with sympathetic preponderance". The patients complain of "jitteriness, tremor, an empty feeling in the stomach, no appetite, pounding heart, thumping in the head, excessive perspiration and insomnia". Almost all patients say that they would be well if they could only "get a hold of" themselves. All had been subjected to a battle experience that had proved overwhelming. The symptoms are those of reaction to fear. Heath and Powdermaker regard them as essentially physiological, an exaggerated expression of fear of a real situation, and they apply to them the term "battle reaction". As "the symptoms were so clear-cut and so obviously due to sympathetic dysfunction", they determined to try the effects of drugs acting directly on the autonomic nervous system. Accordingly they gave "Doryl" and "Mecholyl" (said to be stimulators of the parasympathetic system) and ergotamine tartrate (an inhibitor of the sympathetic system) to normal persons to determine the value of these drugs in counteracting the effects of injections of epinephrine. Ergotamine tartrate proved the most effective. The drugs were then given to patients suffering from "battle reaction". "Doryl" was given to five patients in a dose of 2·0 milligrammes a day for ten days. The improvement was slight and could have been due to other factors. "Mecholyl" in a dose of 250 milligrammes three times a day for ten days had no apparent effect. Ergotamine tartrate, in a dose of 2·0 milligrammes every three hours, was given to twenty patients, over ten days, with uniformly good results. The drug calmed the patients and allowed them to discuss their experiences and their future without any severe reaction and so helped them to regain their confidence. It had no effect on twenty frankly psychoneurotic patients. No symptoms of ergotism were noted. Heath and Powdermaker give a warning against the use of the drug in either hepatic insufficiency or arteriosclerosis. So many possible influences are at work in an experiment such as this, that it would be unwise to draw any immediate conclusions. Suffice it to say that the idea merits further consideration.

[1] *The Journal of the American Medical Association*, May 13, 1944.

Abstracts from Medical Literature.

DERMATOLOGY.

Common Hyperkeratotic Lesions of the Foot.

R. M. MONTGOMERY AND A. H. MONTGOMERY (*The Journal of the American Medical Association*, March 18, 1944) state that the high percentage of those who have been rejected or deferred because of foot defects amongst civilians called to the armed forces bears out the often quoted saying that no part of the body is more neglected in general practice than the feet. The common lesions in which the physician in general practice can do much are callus, clavus and verruca. Ordinary callus is a circumscribed or diffuse hyperkeratotic or indurated area of the skin. At times this horny mass may be a quarter of an inch thick and very firm. When this is shaved off, the papillary lines are all clearly visible and are not interrupted or broken. There is no central core, and thus a callus is differentiated from a corn. A callus results almost invariably from unusual friction or pressure, or from both. Treatment consists in paring and shielding the callus and in wearing properly fitting shoes; these measures will usually effect a cure. The callus is gradually thinned by shaving carefully with a sharp scalpel until the skin is of nearly normal thickness. A felt or foam rubber pad may be placed behind the callus to raise a depressed metatarsal head. Moleskin adhesive plaster is placed over the pared area. Excision is not recommended, because a painful scar frequently results. A corn or clavus is a callus in the centre of which is a conical horny mass. The base of this keratotic growth is directed outwards and the apex presses against the sensitive subjacent structures. Corns are termed hard or soft according to their location. Both types result from pressure on bony prominences. Hard corns extend over a bony prominence; soft corns occur between the toes, where they become macerated by sweat. The soft corn is found most commonly in the space between the fourth and fifth toes and usually appears macerated. Not until the macerated skin is pared away is the radix of the corn found. The soft corn has no connexion with dermatophytosis. However, it has been mistaken for the maceration often seen in this condition. The treatment of corns depends primarily on a change to footwear of the proper size and shape. Conservative treatment is preferred; the corn is pared and then protected with felt, foam rubber or "Latex" pads. A salicylic acid plaster (40%) can be applied with caution, but only on non-diabetic patients and those with normal vascular systems. If a hard corn is infected or if a sinus is present, soothing wet dressings are indicated. The application of phenol (95%) or silver nitrate (50%) to the sinus often aids in its closure. The involved toes should be separated by the insertion of a small felt wedge, shaped as a duck's bill, or a piece of foam rubber or lamb's wool. Soft corns may be infected by self-paring, inflammation and swelling may extend onto the dorsum of the foot, and a sinus may complicate the lesion. Drainage and wet dressings are indicated. In some instances a sinus yields to phenol applied to its depth on an applicator. In others complete excision of the sinus is required. The "neurovascular corn" is usually located under the first or fifth metatarsal head. It is vascularized and intensely painful. Hypertrophied blood vessels may be seen through the transparent horn layer. It occurs in the hyperthyreoid person or in the person with thin-textured skin. Lesions of this type are resistant to all therapy. Radiation should not be used without close shielding and is best done by first shaving down until the border of the corn is defined; then three doses of X rays to this area alone are given at intervals of ten days. The initial dose is 800*r*, the second 650*r*, and the third 500*r* unfiltered. Local applications of a 50% or 100% silver nitrate solution are made after the Röntgen therapy. These applications may also be tried without Röntgen therapy. Warts on the feet are termed *verrucæ vulgaris* when on the dorsal surface and *verrucæ plantaris* when on the sole. Plantar warts, which are nearly level with the skin surface, are divided into three types: the "single" type, the "mother-daughter" or "epidemic" type, and the mosaic type. Single warts are located under pressure points, usually under metatarsal heads. The epidemic type may involve any part of the sole. There is a central lesion with outlying satellites, some of which may be so minute and transparent as to resemble vesicles. When these warts are shaved the border and the capillary tips are seen. The mosaic wart is a multiple patchy lesion limited almost invariably to the sole; it is irregular, bordered, dry and topped by a rather granular, friable horny mass. It is usually painless. After paring one sees an area composed of soft corn-like segments so closely packed that those in the central part have angular rather than rounded borders. Treatment depends on the type, and whether the lesion is radio-resistant or radio-sensitive. Surgical excision is an efficient means of removing the "single" type; it should not be used for the mosaic or epidemic types. Treatment of all types of warts with acids is successful in many cases. Salicylic, citric, trichloracetic and dichloracetic acids are most popular. For the mosaic wart acid therapy is the treatment of choice. A 40% salicylic acid plaster cut to the size and the shape of the wart is applied. The treatment is repeated every five to seven days after the removal of the macerated tissue.

Contact Eczema due to Nail Polish.

W. L. DOBES AND P. H. NIPPERT (*Archives of Dermatology and Syphilology*, March, 1944) state that nail polish is one of the most frequent causes of dermatitis of the eyelids in women. One or both eyelids are usually involved, but both the upper and the lower lids may be simultaneously affected. Interesting features of nail polish dermatitis are its patchy appearance and the fact that the lesion is most frequently limited to the medial position of the upper eyelid. Persons acquire the habit of rubbing their eyelids with the backs of their hands and with their nails. The nervous habit of picking at the inner corners of the eyelids accounts for the patchy involvement. When the lids are closed and rubbed with the finger tips, usually only the upper lids are touched. The habits of resting the chin on flexed fingers, biting the nails and probing the nares and the ears with the finger tips result in patches of dermatitis in the areas where the nails touch the skin. On the sides of the neck a more diffuse dermatitis is usually found. If any specific areas are constantly exposed to contact with the allergen, the skin in these limited patches may become lichenified and clinically give a picture of a *lichen chronica simplex*. Adjusting the brassière, girdle, hose or other garment may cause the eruption to appear on almost any part of the body where contact with nail lacquer is made. The authors report the cases of 90 patients who came under their observation, six of them in detail. They review the literature and find little information concerning nail lacquers and the nature of their components. The usual nail polish is composed of a body, a plasticizer (such as synthetic resin), a solvent, a dye and a perfume. Theoretically any of these should be a likely irritant for a hypersensitive person. Patch tests were performed with seven brands of nail polish, each brand including some of the colourless and some of the coloured lacquers. A total of 29 different lacquers were used for each individual patch test. Besides these variations each patient was tested with the special lacquer that she was using. Of 30 patients studied, two were sensitive to all the brands of nail polish, apparently being sensitive to lacquer. Some colourless and all coloured polishes elicited a positive reaction. The dermatitis produced by nail polish consists of a low-grade erythema and scaling. The great majority of patients will give a positive reaction to patch tests. A few patients seem to have a localized hypersensitivity and do not react to patches on the back or on the forearms. The authors conclude that usually some brand of nail polish, especially a colourless polish, may be found that the patient may wear with impunity. Patch tests are of doubtful value for some patients, and clinical observation is of greater importance.

Misuse of Sulphonamide Compounds.

D. BLOOM (*Archives of Dermatology and Syphilology*, April, 1944) states that, because of the increasing numbers of persons who have been sensitized to sulphonamides, reactions due to them have become common. Many have been serious and some fatal. Some of these persons have been sensitized by ingestion of these drugs properly administered for a serious illness. Most of the sensitized persons, however, have been given or have taken the drug injudiciously; this means that they have taken it for a trivial disease or for a chronic infection like sinusitis, which is known to be only slightly or temporarily relieved. A third possibility is that the drugs may have been used externally in the form of ointments, powders and lotions against pyogenic and other dermatological diseases for which other harmless drugs can be used with as good or better effects. The greater potential danger of these drugs is their extraordinary ability to sensitize more than a third of the persons to whom they are administered. It is also not realized that topical applications of sulphonamide compounds in the form of oint-

ments, powders and sprays, and also of small medicated bandages are potentially dangerous. Sulphonamides are, therefore, being used frequently in treatment of all kinds of trivial superficial infections and injuries of the skin. As a result enormous numbers of cutaneous reactions are observed today in dermatological clinics and in private practice. At some future time when the patient needs the help of these drugs for a serious illness he may be unable to take them without the danger of a serious reaction. The author makes the following suggestions: (i) Dermatologists should record every case of sensitivity or hypersensitivity to sulphonamide compounds which they observe; these cases should be collected and reported. (ii) The lay Press should be induced to cooperate in making known to the public the danger of the indiscriminate use of the sulphonamide drugs. (iii) Legislation should be introduced prohibiting the sale to the public without the authorization of a physician of ointments and bandages containing sulphonamide compounds.

Acrodermatitis Continua (Hallopeau): Effect of Treatment with Sulphapyridine.

W. F. LEVER (*Archives of Dermatology and Syphilology*, April, 1944) reports a case of *acrodermatitis continua* of eleven years' duration, in which sulphapyridine caused complete disappearance of the lesions as long as it was given in adequate amounts. He also reviews the literature. The author states that two types of *acrodermatitis continua* are generally distinguished, a localized type, which is limited to the hands and feet, and a generalized type. He believes that in his case the following clinical symptoms are believed to establish the diagnosis of acrodermatitis: (i) onset under and around a nail; (ii) gradual centripetal extension with a sharp border; (iii) the presence of particles throughout the affected areas; (iv) the dull red, dry, shiny appearance of the skin in the involved area; (v) the presence of fine, branny, silvery scales; (vi) the permanent destruction of several nails; (vii) the gradual atrophy of the skin and the underlying soft tissue of the affected thumb, leading to a decrease in the circumference of the thumb and to sclerosis of the soft tissue, with limitation of motion. Two diseases deserve consideration in the differential diagnosis—namely, pustular psoriasis and *dermatitis repens*. Pustular psoriasis and *acrodermatitis continua* can resemble each other so closely that a distinction may be nearly impossible. However, pustular psoriasis does not lead to atrophy of the skin and sclerosis of the underlying soft tissue. A distinction between *acrodermatitis continua* and *dermatitis repens* is not made by all writers. The author is convinced that the two diseases are different. *Dermatitis repens* shows vesicles and bullæ as primary lesions. A clear or slightly turbid fluid oozes from the surface of the lesions. There is undermining of the epidermis, which is raised up by subjacent fluid, clear or turbid. The disease, though it may last for months or even years, results in complete recovery. In other words, *acrodermatitis continua* is essentially a pustular, dry, chronic, destructive disease, and *dermatitis repens*, a vesicular, moist, self-limited, non-destructive disease. In the author's case the effectiveness of the various sulphonamides was studied. Sulphapyridine in doses of three grammes a day caused the disappearance of all active lesions as long as it was taken. Sulphanilamide, sulphadiazine and sulphathiazole in doses of three grammes a day proved to be ineffective. The response of *acrodermatitis continua* to sulphapyridine favours the possibility that the disease may be caused by bacterial allergy.

UROLOGY.

Bladder Injuries.

A. D. MUNGER (*The Journal of the American Medical Association*, April 15, 1944) states that in the present conflict the proportion of bladder injuries to general systemic injuries is greater that in the First World War. Also, non-penetrating or "blast" injuries of this organ are commoner than penetrating injuries. A concussion "blast" from modern aerial or artillery bombardments may rupture the abdominal viscera without external wound, and produce extensive blood or urinary extravasation. Damage to the pelvic girdle may be the cause of, or may complicate, bladder rupture. Most bladder injuries in war, and often in civilian practice, are complicated, and therefore the simple old classification of intraperitoneal and extraperitoneal groups should not prevent a complete search for complications, such as intraperitoneal tearing of the bladder and intestinal injury. In the first few hours after receipt of the wound, the surgeon's activities should be directed towards the combating of shock, systemic antisepsis and adequate drainage. Later, he can institute deliberate reparative surgery. Perforation of the small intestine, as a complication, is most common, but the colon or rectum is injured with great frequency. An indwelling urethral catheter has many drawbacks during transport. Both for bladder injuries, and for paralysis of the bladder in spinal injury, the most practical measure is the establishment of a suprapubic cystostomy. In injuries of the perineal part of the rectum and the extraperitoneal part of the bladder, suture may be difficult, and adequate perineal and perivesical drainage must be supplied in addition to the suprapubic cystostomy. Definitive reparative procedures should be delayed till the patient has been studied in a favourable base hospital environment. In cases of neurogenic bladder paralysis, the policy of non-intervention leads to a high percentage of cases of urinary sepsis, so it is better to make a cystostomy at the front line theatre as early as possible. Catheterization is dangerous and nearly always leads to sepsis.

The Cystometrogram in Diagnosis.

AFTER ten years' experience with the cystometer, H. M. Weyrauch, E. L. Lucia and J. Howard (*The Journal of Urology*, February, 1944) present clinical and statistical data which cast serious doubt upon the value of the cystometrogram as a diagnostic test. Several sources of error are criticized: (i) the variability of cystometrograms from the same normal patient at different times; (ii) the existence of great variability in the three groups, normal, hypertonic and atonic; (iii) inability to differentiate one group from another by the curves or end points; (iv) the broad overlap of the "normal" and "abnormal" curves; (v) the fact that numerous abnormal conditions produce identical changes in the curve. Cystometry has been advocated particularly for differentiating between neurogenic and obstructive lesions. The authors regard cystoscopy as more reliable, but they recognize the value of cystometry in augmenting our knowledge of the normal and abnormal physiology of the bladder.

Urea Spot Test.

M. PLOTZ, N. E. REICH AND H. N. NAUMANN (*The Journal of Urology*, January, 1944) commend a simple urea spot test, which is sufficiently sensitive to detect slight, moderate and marked increases in blood urea content. A simple reagent which is stable and easily prepared is required, and the test can be completed in ten minutes. This test is not intended to replace the more complicated tests now in use. Its value lies in its ready application for casualties (in the differentiation between uræmia and other causes of coma) and for following the progress of patients under treatment. For this purpose it is much more economical than the standard tests. The sulphonamides give a similar colour reaction to urea, and this may interfere with the readings. On the other hand the test may be used for the detection and rough estimation of the level of sulphonamides in the blood.

Infiltrating Carcinoma of the Bladder: Total Cystectomy and Ureteric Transplantation.

H. J. JEWETT (*The British Journal of Urology*, December, 1943) publishes a new method of bilateral transplantation of the ureters preceding total cystectomy for infiltrating carcinoma of the bladder. The method is of two stages, and both ureters are first of all sutured for a distance of five centimetres between the mucosal and muscular layers of the sigmoid, without interruption of ureteric continuity. Four weeks later, the abdomen is opened again, and the emerging portion of each ureter is divided, the vesical ends being ligated. A specially designed electrode carrier is now inserted into the emergency ureter, and when it is in proper position, a lever on its handle is depressed, a wire electrode being made to emerge and project near the tip. By means of the cutting current, an ostium is made connecting the lumen of the adherent ureter with that of the bowel, after which the electrode is removed. The emerging ureter is then cut off flush with the outer wall of the sigmoid and ligated, and the stump is buried in the wall of the bowel by a purse-string suture, just like an appendix stump. In this ingenious way the new uretero-colonic ostium is made aseptically. In the author's series of 29 completed operations, only three patients died as a result of the anastomosis operation. Among four other elderly patients suffering from advanced carcinoma, there were two deaths from coronary occlusion, one from pulmonary embolus and one from volvulus. If the primary growth is to be suitable for radical cure by total cystectomy, metastasis must be absent, and the neoplasm must be completely confined to the bladder wall and freely movable.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch of the British Medical Association was held on July 20, 1944, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, Dr. G. C. Willcocks, the President, in the chair.

Bronchitis.

Dr. R. S. Steel read a paper entitled "Bronchitis: Especially Chronic" (see page 373).

Dr. T. M. Greenaway said that Dr. Steel knew he was a kindly critic and an ever-present cynic, in regard to the subject of asthma at least. He could only say, in the most kindly way, that only an allergist with the enthusiasm that covered allergists could have traversed the field of acute and chronic bronchitis right down to the details of the dress that people should wear and the villages that they should inhabit. However, Dr. Steel was an authority on the subject under discussion. Dr. Greenaway had been amazed at the classification of suburbs into dangerous and sub-dangerous localities. He was also amazed to think that vaccine therapy could at the present time be held to be one of the major forms of treatment for chronic bronchitis. Dr. Greenaway agreed that the bronchospasm that was associated with chronic bronchitis or chronic asthma was so much relieved by so many forms of therapy that vaccine therapy might as well be tried too; in the fullness of time the good results obtained could be attributed to whatever therapy or lack of therapy had been adopted. Dr. Greenaway had been interested in Dr. Steel's review of the subject of chronic bronchitis, because for a long time he had held the view that the bronchial mucosa in some ways resembled that of other tracts in the body. He instanced the degenerative changes met with in the bronchial tree in later life, and said that a comparison existed between these with their neurogenic accompaniments, and chronic colonic disturbances. It appeared that a certain amount of mucosal degeneration was present in a great many people aged over sixty years. In his own practice Dr. Greenaway had been particularly impressed with the noxious effects of certain dusts, quite apart from pneumonokoniosis. When a man aged over sixty years presented himself with chronic bronchitis, and when it was learnt that he had been exposed to a dust for twenty or thirty years, and the radiologist was unable to find any evidence of stippling, Dr. Greenaway was inclined to give the patient the benefit of the doubt with regard to occupation. But the figures shown by Dr. Steel indicated that females who had not such occupations suffered almost as much as males. However, Dr. Greenaway was still of the opinion that occupation had much effect. Dr. Greenaway shared with Dr. Steel his disregard for the alleged utility of the ammonium salts; he dared to wonder whether potassium iodide was as useful as Dr. Steel said it was. In conclusion, Dr. Greenaway expressed his appreciation of Dr. Steel's paper, in spite of the points in it with which he did not agree.

Dr. H. M. Rennie said that Dr. Steel's paper had admirably covered the subject. With regard to Dr. Steel's remarks about acute fibrinous bronchitis, Dr. Rennie said that he had a case of his own to record. Some years previously, when he was in practice at Ashfield (a suburb not on Dr. Steel's "dangerous" list), he had been called to see a girl, aged eleven years, who had suffered from a cold, for which her mother had kept her in bed for the best part of a week. Dr. Rennie had been called because the child had an acute attack of breathlessness. On his arrival a few minutes later, however, the child appeared quite comfortable and had a good colour. About six hours later the same thing happened again, and when he arrived this time the child was dead. Not being satisfied as to the cause of death, Dr. Rennie had asked for a post-mortem examination, and death had been found to be due to a plug of fibrin in the larynx, apparently coughed up from the left main bronchus, which was covered with a white fibrinous exudate from which a pneumococcus was grown in pure culture. The child appeared to have had no previous respiratory infection. Dr. Rennie went on to say that Dr. Steel had made a dogmatic statement to the effect that bronchospasm occurred in bronchitis. Dr. Rennie wondered whether there was any definite evidence that it was bronchospasm that was responsible for the narrowing of the bronchial lumen. He thought it was largely mucosal change that was responsible for the respiratory difficulty. Dr. Rennie said that through the bronchoscope he had watched the mucous membrane in the larger bronchi actually swell; he pointed out that it would swell considerably more during an attack. With regard to treatment, Dr. Rennie said that suction of the thick, tenacious sputum from the bronchi was of great benefit; he thought that the addition of a little warm saline solution was also good. Dr. Rennie thought the use of most of the so-called respiratory irritant expectorants was inadvisable, at least in the acute disease, because irritation was already present. He was not sure about the use of potassium iodide; he generally employed a mild saline mixture of the Brompton Hospital "hot mixture" type. These people seemed to do well on that treatment.

Dr. Clifton Walker also thanked Dr. Steel for his paper. He said that as an inhabitant of one of the so-called "dangerous" suburbs he did see a considerable number of children suffering from acute and chronic bronchitis, and in the last few years it had been associated with much bronchospasm. Treatment was difficult; adrenaline was not of much use, and steaming did not appear to be helpful either. Sometimes the attack had lasted for many weeks in spite of anything he could do. In conclusion, Dr. Walker asked what was the rationale of using chemotherapy in bronchitis, just because the patient had a rise in temperature. He wondered why one should use a sulphonamide for the bronchitic who was febrile when it had no beneficial effect on the ailment itself.

Dr. L. J. A. Parr congratulated Dr. Steel on his presentation of a difficult subject. The first point to which Dr. Parr referred was sepsis in the causation of bronchitis. He said that in many years in general practice he had removed the tonsils and adenoids from many children, and the bronchitis still ran on like the brook. In cases associated with vasomotor rhinitis and polypi, it was found that the stripping of the membranes out of the antra was a prerequisite. Affected children never made any progress until the antra were freed from infection. Dr. Parr thought that an allergic factor was present as well as an infective factor, but where one began and the other ended it was impossible to say. No one knew yet whether the bacterial theory or the virus theory was correct. One important point emphasized by Dr. Steel, however, was chill. In the army they had found out that when rapid changes of weather were experienced, they always had a number of cases of bronchitis and pneumonia; in spring and autumn particularly, there were invariably a great many cases of tonsillitis, acute bronchitis and pneumonia. The cases all occurred at once. With regard to the wearing of a woollen jacket from autumn to spring, Dr. Parr said that that was one of the most important methods of treatment, especially for children. If they were wrapped in a cotton-wool jacket, the results were gratifying; the measure should be applied for two or three successive winters. In "The British Encyclopædia of Medical Practice", edited by Rolleston, the procedure was highly commended. Dr. Parr then referred to vaccine therapy. He said that there was a great deal of controversy about its efficacy. He quoted cases from his practice to show that in some instances the result of such treatment was dramatic. Dr. Parr said that for many years he had used serum broth vaccine; he had found it better than that grown on agar or serum agar. He gave as large a dose as 2,000 organisms per cubic centimetre, working the doses up slowly, and continuing for a period of one year. If an acute attack occurred later, another vaccine was prepared. Dr. Parr could say with assurance that in those cases in which there was no evidence of allergy, vaccine therapy was of great value, in spite of the dislike of most of those present for that form of treatment. Dr. Parr said that he thought the main trouble lay in the fact that they did not persist in the remedy; the condition was chronic, and it required a chronic remedy. Its success also depended on the absence of any allergic factor. In conclusion, Dr. Parr asked Dr. Steel whether creosote in any form was still used.

Dr. Douglas Anderson first stressed a point made by Dr. Steel in the treatment of acute bronchitis—the warming of the patient's room. Dr. Anderson said that it was surprising how many people who suffered from bronchitis, acute and chronic, and who had a severe paroxysmal cough at night, thought that there was some healing virtue in fresh air, and slept with their bedroom window wide open. Often the coughing could be stopped quickly if the window was closed and the room warmed. Dr. Anderson had been interested to hear the discussion on expectorant mixtures. Dr. Steel had said that they were often of value, but both he and Dr. Greenaway had well "debunked" the salts of ammonium. Dr. Anderson thought that there was only a

limited application for expectorant mixtures in bronchitis acute or chronic. What expectorant mixtures usually did was to irritate the stomach, set in action the vomiting-bronchosecretory reflex and make the bronchial secretions more copious and watery. Dr. Anderson thought that this action might be of value in the presence of a hacking cough and scanty, viscid sputum; but he could not see what good such a mixture could do when a patient was suffering from cough and had copious sputum. Expectorant mixtures to stimulate the gastric mucosa were frequently ordered to be taken three times a day after food. Dr. Anderson thought that when an expectorant mixture was prescribed, it was best given on an empty stomach. With regard to the removal of tonsils and adenoids, Dr. Anderson said that he thought Dr. Steel had made rather a bold suggestion when he said that the fall in the incidence of bronchitis in children after the age of ten years might be attributable to the removal of tonsils and adenoids. Dr. Anderson thought it was in some way connected with the growth of the respiratory passages and with changes in the mucous lining of the respiratory passages occurring about that time. In fact, he had the impression that the removal of a considerable amount of lymphoid tissue from the pharynx of young people who suffered from chronic bronchitis was often followed by hypertrophy of the remainder of the epithelium of the respiratory passages and by aggravation of some of the symptoms of their disease. The general treatment of chronic bronchitis seemed to have been concentrated a good deal on the treatment of the disease and not a great deal on the treatment of the patient. It was often found that persons suffering from acute bronchitis that had become chronic and persistent were not well for some other reason. Sometimes they were people who were suffering from long-continued nervous strain or chronic physical fatigue. Inquiry should always be made particularly into the presence of such factors, and if they could be eliminated without making mischief or upsetting people's lives too much, this should be done. A change of environment away from home was often of great value.

DR. BASIL WILLIAMS said that the fact that a smaller percentage of women than men suffered from chronic bronchitis was rather surprising, in view of the dress adopted by the average man and the average woman; one would expect to see the figures reversed. Referring to allergy, Dr. Williams recalled that Dr. Steel had said that 125 patients had given positive reactions to skin tests; Dr. Williams wondered whether they were true allergic tests, or whether they could be ignored. A point often overlooked was the treatment of the cough itself. The cough arose from a very limited area in the naso-pharynx, behind the posterior pillar of the palatine arch to the larynx. Most patients had the idea that coughing was beneficial. Dr. Williams did not think so; he encouraged patients not to cough, but to use their willpower to avoid coughing, hawking up the phlegm instead, and he administered sedatives. A distressing cough became largely a habit. It was well known that after a child had recovered from whooping cough, the whoop was apt to return with any respiratory infection. Firmness, even the threat of punishment, would often stop the whoop. Dr. Williams then referred to vaccine therapy. He pointed out that Dr. Steel had said that no constant bacteria were found in cases of bronchitis, and had then advocated the use of vaccine therapy. Dr. Williams wondered whether the good effect reported to follow such treatment was not due to a form of non-specific desensitization. It often produced good results in cases of allergy. It was difficult to separate the allergic from the non-allergic cases. The only thing to do was to give the patient a constitutional test; the allergen was introduced to the patient's environment, and in every case in which allergy was present the patient responded.

DR. STEEL, in reply, referred first to cold air. He reminded members of the story about Spitzbergen, which had about two thousand inhabitants. The island was entirely free from respiratory infections except when the mail steamer put in there, and on one occasion an aeroplane had landed three passengers there who had started an epidemic of respiratory infection that swept the whole district. With regard to the warming of the patient's room, Dr. Steel said that many people thought that they needed a lot of fresh air. Fresh air might be cold air, and cold air was damaging to bronchitic patients. That was why the warming of the room was of such value. With regard to the so-called recurrent cough of children, Dr. Steel said that it was frequently diagnosed as chronic bronchitis with acute exacerbations. Many such affections, especially when there was a family history of allergy, were allergic, and skin tests should always be carried out. Speaking of vaccine therapy, Dr. Steel said that he had mentioned that he had no series of controls and so could only express an opinion. The giving of increasing small doses was of value in his experience, possibly by increasing resistance to the secondary invaders. Vaccine therapy had to be carried on for a considerable time; just "three shots" of vaccine with large doses might do much harm. Dr. Steel had carried out vaccine treatment for two years before the patient had lost his symptoms. He had had no experience of broth vaccine, but had read about it. He thought that vaccine given in small doses tended to liquefy the sputum. Nature would no doubt liquefy it in her own time. The deaths occurring in *status asthmaticus* were due to inspissated mucus, and the treatment for *status asthmaticus* was bronchoscopic suction. Potassium iodide also would liquefy the sputum and act as an expectorant. It was the tenacious sputum that caused the irritating cough and exhausted the patient. When the sputum was liquefied, the severity of the cough was minimized. Often the cough had to be controlled with *Linctus Heroin*; this was comforting at night. Dr. Steel said that everybody seemed to have gone mad on chemotherapy because it reduced temperature. Since its introduction it had been given to all persons in public hospitals who had pyrexia; it shortened their period of discomfort, even though it might not shorten the duration of the cough, but it should be used if broncho-pneumonia was suspected. Dr. Steel once again referred to the value of potassium iodide. With regard to Dr. Parr's remarks about infection in the army, Dr. Steel said that everyone had seen influenza and so-called colds run through camps at an alarming rate. He called attention to the article by W. I. B. Beveridge and S. E. Williams entitled "Sporadic Occurrence of Influenza in Victoria during 1943", which was published in this journal on July 22, 1944. Dr. Steel said that in New South Wales a similar incidence of upper and lower respiratory infection would be found in spring and autumn, and another peak would be reached in winter. He had administered glucose and insulin in acidosis, which frequently occurred in children; it was a manifestation of starvation. The increasing of resistance by reducing the acidosis had proved of value. With regard to the changes in X-ray findings, Dr. Steel said that he had noticed such changes himself, provided no irreversible damage had been done. He thought that the shadows originally apparent were probably of vascular origin. Dr. Steel had seen a great improvement in the X-ray findings occur within from six months to two years. He went on to say that creosote was used, and "Waterbury's Compound", which contained it, was good; he also liked to add potassium iodide. Referring to "smoker's cough", Dr. Steel said that it was bronchitis. He had mentioned that the distressing cough of bronchitis was due to viscid sputum, not to more liquid sputum. With regard to the removal of tonsils, Dr. Steel pointed out that he had been speaking of diseased tonsils, which acted as a focus of infection; any protective function they had previously had, had passed. He saw no reason to hesitate to have the tonsils removed. It was possible that lymphoid tissue would grow again; but that could not be helped. It was better to help the patient out of his distressing condition and let him develop a little lymphoid tissue, which would atrophy in time, rather than to let him go on coughing until he had a deformed chest. Dr. Steel said that he had found little benefit to follow a short period of change of climate. To change to a dry climate for a long time, a period of years, was beneficial in chronic bronchitis; a few weeks spent away from a fussy mother or father were also of value. Suitable clothing was also important. Dr. Steel referred to the low-cut singlets worn by women, which did not protect the chest. In reply to the question about skin tests, Dr. Steel said that they had all been tested with inhalants. All the patients who gave positive reactions to skin tests had inhalant asthma as well as chronic bronchitis. He did not use the term "allergic bronchitis". He said that he had found belladonna in small doses to be of use. Dr. Steel was interested in Dr. Rennie's history of a case of acute fibrinous bronchitis. The fibrinous plug found obstructing the larynx surprised him; he thought it must have been a very large plug, or the child must have been a very small child. Dr. Steel questioned the word "fibrinous", but he could make no further criticism of the finding. However, he would be interested to know the further history of the family to which the child belonged. Referring to the question of bronchospasm, Dr. Steel said that he had mentioned asthmatoid symptoms and called them bronchospasm in the majority of bronchitics. Bronchospasm would presuppose spasm of muscle. Two important features of asthmatoid cases were constriction of muscle and also congestion of the mucous membrane; both were involved.

Dr. Willcocks, from the chair, on behalf of those present thanked Dr. Steel for his paper. Dr. Willcocks said that he was in agreement with Dr. Steel on many points. Referring to change of environment and change of climate, Dr. Willcocks said that he would hesitate to say that such a change did not benefit chronic bronchitics. In the days when one could travel to Cairns by sea, the patient's absence on such a voyage benefited both him and the doctor. Dr. Willcocks thought potassium iodide very useful. He referred to an old prescription which he had found of great value; it was to be found in "The British Pharmacopœia", and consisted of potassium iodide, iron and ammonium citrate, potassium bicarbonate and infusion of gentian. Dr. Willcocks then referred to vaccines. He said that on a previous visit to England he had gone to Brompton Hospital to see the pathologist, who was interested in vaccines. The pathologist was just packing to leave for India; he said that he was going to make a vaccine for a rajah, whom he had cured in a similar manner six years previously. As the fee was to be one lac of rupees, Dr. Willcocks concluded that there was considerable merit in vaccines.

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed civil practice as from the dates mentioned:

Dr. E. Mansfield, Cairns, North Queensland (September 12, 1944).

Dr. E. S. Stuckey, "Yambacoo", 57, Spit Road, Mosman (August 20, 1944).

Correspondence.

THE UNIVERSITY QUOTA SYSTEM.

SIR: Since writing to you last year on the subject of the selection of medical students under the University quota system much confusion and impatience still exists in the minds of parents and prospective students about the whole situation.

Early in the year important statements were made in the Press and were not denied by the University. Statements made by the head of the Universities Commission were publicly stated by the Minister for Education to be incomprehensible to him and were not in keeping with his communications from the Registrar of the University! The only clear statement which emerges is one to the effect that the leaving pass is still to be the basis for the selection of medical students under the University quota system.

It seems incredible that with the opportunity of making recommendations of a progressive nature thrust upon them, the Singapore mind should still prevail, and that the University should adopt such an antiquated regressive and grossly unfair standard for selection. It is widely accepted that this leaving pass means very little and that it is in no sense a measure of a student's true practical capabilities.

It was pointed out by one of our headmasters in his speech day address that this yardstick of "the leaving" is in no way a measure of the character, temperament or personality of a candidate, nor has it much vocational guiding value, nor does it give any accurate estimation of the intellectual capacity. To my mind it is more a measure of the various schools' ability to cram-teach for this particular examination.

One of the most disturbing results of this decision is the attitude that it is inducing in the minds of parents and students towards their education. The leaving certificate is becoming all-important, school subjects are being dropped, schools changed, social activities and sport restricted and an emotional tension towards education created which is tragically unnecessary. This adolescent period, the most difficult developmentally, physically, emotionally and intellectually, is being made even more difficult. It is almost impossible to impress on children between the ages of twelve and sixteen, except possibly the relatively unstable children with a one-track intellectual sublimation, the importance of school work for their future or to create in them the incentive or concentration which will gain for them a pass which represents their real capacity. I can sympathize with the father who asked: "If I wish my son to enter a profession, must I turn him into a pimply faced myopic little swot?"

Despite the selection of the so-called cream of the students over the past two years, the results at the end of first year medicine hardly bear scrutiny. There has been as large a percentage of failures as before.

Surely there is something wrong when a failure approaching 40% occurs in a group of students especially selected for their suitability to do the course. As I have pointed out before, this can only mean that the standard demanded is too high, that the teaching is poor, that the selection of students is faulty or that having been selected, they do not work. If the last-mentioned is the case, perhaps the extra work involved in a closer supervision and quarterly examinations would produce gratifying results. For any of the other reasons the remedy is obvious. Strictly speaking, under quota conditions with selected students there should be no failure. Their intellectual capacity must be all right, otherwise they should not be allowed to waste their time by being accepted.

Three cases that have come under my notice recently might be worth recording. One, a girl, whose desire to do medicine almost amounted to an obsession, gave up all her social activities, games, week-ends and holidays for two years. She dropped all reading outside her leaving subjects, and these subjects were selected solely with a view to achieving a quota pass. Her pass this year allows her to matriculate, but she will miss the quota. On the other hand, a boy, of normal type and with exceptional qualities, was rejected. His pass was honours in English, an "A" in mathematics, and four "B's". He was only just seventeen and was not destined to join the army for twelve months. The University, although this boy had matriculated, would not allow him to do his first year in medicine. Illegally. What the University did not know or bother to find out was that this boy's "I.Q." on the Binet scale was 133%, on Koh's test 130%, on the A.C.E.R. non-verbal test 128%, and on the Bellevue test 132%; that he was over six feet tall, weighed twelve stone and had never known a day's illness; that he was a prefect at his school, was in the football, cricket and athletic teams and was captain of the debating society; that he was greatly respected by his headmaster and later was made captain of the school. Nor did the University know that his parents had made very considerable sacrifices to send him to a private school and that it was the parents' and the boy's life-long ambition that he should do medicine. Like so many others, this boy was advised to go back to school for twelve months. This he could ill afford to do, and as he had matriculated, it seemed to be a waste of time, as he had no guarantee that he would achieve the quota even then. In a selection based on "I.Q.", physique, character, personality, recommendation of headmaster and general suitability, this boy would be in the first fifty selected. We do not engage even an office boy without a personal interview and a demand for a reference. With so many changes in names, the University could not even tell us the nationalities of the various students accepted. Another absurdity was the case of a girl of sixteen who, having matriculated, was admitted to medicine. Her father, rightly thinking her a little immature to study medicine, arranged for her to take a job for twelve months to gain some experience. On making application the following year she was rejected.

The University may believe that the technical difficulties of accepting an increasing number of students is too great an obstacle of accommodation, staff and equipment. Temporary hutments, a readiness to do shift work, the proper incentive and an altered outlook are all that is necessary. The University, instead of deploring the increase in the number of students, should welcome them and be prepared to go to any lengths to make provision for and to educate all who apply if they are able to matriculate.

It seems more than quaint to find a matriculated student fighting a legal battle for his entrance to the University and more quaint still for the University to be offering a defence. The University should be fighting the battle for the student. The University's job is to welcome the student and let who will do the fighting.

The University was concerned about the fact that some students appeared to be seeking sanctuary in a faculty from their military duties. There is a small section of all the community who will always attempt to evade their duties, but again, is not the function of the University to actively correct this?

The University had the opportunity through the Universities Commission to dictate and demand a high priority in manpower for staffing, accommodating and

equipment for the proper education of increasing numbers of doctors, dentists, scientists, engineers *et cetera*, but allowed themselves to be overruled. If there was a legal battle to be fought, surely it should have been fought by the University over the introduction of the quota system, the most noxious weed ever to take root in any modern educational system. The University may believe that after the war it will be different. It certainly will be. The Government is quite rightly subsidizing students in the various faculties. That the University with its present limitations will be able to cope with the increased numbers that this will inevitably mean, *plus* the demobilized servicemen, as well as the usual contemporary school age group, is absurd. A quota system cannot be tolerated after the war. The matriculation standard, of course, cannot be raised, nor will the University be able to bury its head in the sands of manpower. The only way to avoid the intolerable crowding that existed after the last war is for them to be already arranging plans and major schemes for a very considerably enlarged university or several universities ready to function on the cessation of hostilities. Putting these plans into operation should command the highest priorities. How far have such plans advanced, or do they exist? I don't know. I may be wrong about my facts, because the University is singularly inarticulate about itself and its activities. University news should be front page news, but it is rarely that we read of any University activities other than the exploits of the rugby football team.

Lastly, one of the most pressing and more immediate problems is the problem of the matriculated seventeen year old. These youths must feel that they are commencing life in a very phoney world indeed. Although they are unable to join the services for twelve months, they are not allowed to attend the University and do their first year and so have it behind them before they join one of the services. The seventeen year old should be allowed to do first year in the same way that the bricklayer, plumber or anyone else commences his apprenticeship before being called up in the usual way when he reaches call-up age. It is, I think, enormously important that these youths should have some roots already embedded to give them some sort of stability in the post-war period. It seems unthinkable to me that after the past five years of war the younger generation should emerge to find the same mismanagement and chaos existing and to wake up to a realization that the proper educational facilities are not ready and waiting for them. Would it be better if the more technical faculties were under other than University control? Perhaps even the Government might have more progressive ideas! What do you think, sir?

Yours, etc.,

Cedric Swanton.

135, Macquarie Street,
Sydney,
September 10, 1944.

SIR HOWARD FLOREY'S MEETING IN SYDNEY.

Sir: I have read with some amusement, but more indignation, the entirely inadequate apology of the Council for the shocking mismanagement of Sir Howard Florey's lecture. (See The Medical Journal of Australia, September 16, 1944, page 323.)

The excuse that the Great Hall was not available is the poorest that I could think of. Other public halls would certainly have been available, for example, the Paddington Town Hall, or some other such, and would have been just as easy of access as the Union Hall.

I can find no excuse for the hall having been packed with others besides doctors, to the exclusion of doctors. The Council themselves must have been well aware of the state of affairs; still, no one besides a much harassed assistant secretary was there to explain what had happened; but the Council themselves were comfortably ensconced in front seats and entirely unconcerned with the inconvenience and disappointment which members were obliged to put up with.

That the inconvenience is not just merely a matter of words will be understood when I say that four of us had travelled 108 miles after a busy day to hear the lecture, with the prospect of 108 miles to return at night, only to find ourselves locked out at 8.15 p.m. We were not alone; at least 150 doctors and the State Minister for Health were also excluded.

I have always understood that the Council was elected to look after the interests of the members, and an occurrence like this makes one wonder why one continues one's subscription to a body managed with such incompetence. It seems a poor lookout for the profession in the stern struggle that faces it in the near future.

Yours, etc.,

A. C. Arnold.

Commercial Bank Chambers,
17, Bolton Street,
Newcastle.
September 21, 1944.

[The Medical Secretary of the New South Wales Branch of the British Medical Association suggests that the failure of many members of the Association to gain admission to Sir Howard Florey's lecture at the Union Hall of the University of Sydney on September 7, 1944, should be judged in the light of the following facts:

1. The New South Wales Branch could not complete its arrangements for the lecture until Sir Howard Florey's itinerary was finally approved by the army authorities and by the Commonwealth Government, without whose permission the lecture could not be given.
2. At such short notice no suitable hall other than the Union Hall could be obtained. The Great Hall of the University could not be obtained because it was being used for examination purposes.
3. The average attendance at a Branch meeting is in the neighbourhood of 30; to provide for an attendance of 480 persons would therefore appear reasonable.
4. Some of the non-medical persons in the audience were relatives of members of the Association, introduced by them without invitation; others were persons who, on being questioned at the doors, asserted that they were medical practitioners.
5. Among those who failed to gain admission were several members of the Council.

Finally, it should be mentioned that the seats reserved in front were for guests who, as representing certain official bodies, had been invited by some members of the Council to meet Sir Howard Florey at dinner and who naturally came with him to the hall.—Editor.]

WANTED: INFORMATION ON A PROJECTORSCOPE.

Sir: Some six or seven years ago an article appeared in one of the medical journals on a projectorscope for projecting X-ray films by a simple method.

We have searched our literature unsuccessfully for this article. I should be much obliged if you could assist us to find the reference for which we are looking.

Yours, etc.,

E. S. Meyers,
Dean, Faculty of Medicine.

University of Queensland,
July 31, 1944.

Naval, Military and Air Force.

APPOINTMENTS.

The undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 190, of September 21, 1944.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Royal Australian Naval Reserve.

Promotion. — Acting Surgeon Lieutenant-Commander Douglas Arthur Warden is promoted to the rank of Surgeon Lieutenant-Commander, dated 1st June, 1944.

Royal Australian Naval Volunteer Reserve: Naval Auxiliary Patrol.

Appointment.—Keith Lindsay Hugh Kirkland is appointed Surgeon Skipper (Lieutenant), dated 7th August, 1944.

Obituary.

THEODOR WILLIAM GEORGE HENRY SCHENK.

We regret to announce the death of Dr. Theodor William George Henry Schenk, which occurred on September 18, 1944, at Haberfield, New South Wales.

Post-Graduate Work.

WEEK-END COURSE AT NEWCASTLE.

THE New South Wales Post-Graduate Committee in Medicine announces that a week-end course will be held at Newcastle in conjunction with the Central Northern Medical Association on Saturday, October 28, and Sunday October 29, 1944. The fee for the course will be £1 1s., except for members of the defence forces, who may attend the course without fee. Those intending to be present are requested to notify Dr. O. J. Ellis, Honorary Secretary, Central Northern Medical Association, Newcastle, as soon as possible. The programme of the course will be as follows.

SATURDAY, OCTOBER 28.

At Newcastle Base Hospital.

2 p.m.—Registration.
2.30 p.m.—"Nephritis", Dr. John Halliday.
3.30 p.m.—Afternoon tea.
4 p.m.—"A Consideration of Pre-operative and Post-operative Management in Abdominal Surgery", Dr. Douglas Miller.

SUNDAY, OCTOBER 29.

At Newcastle Base Hospital.

10 a.m.—"Spinal Anæsthesia", Dr. Stuart Marshall.
11 a.m.—Morning tea.
11.30 a.m.—"Coronary Arterial Diseases", Dr. John Halliday.
2 p.m.—"Pentothal", Dr. Stuart Marshall.
3 p.m.—"The Problem of Sciatica", Dr. Douglas Miller.
4 p.m.—Afternoon tea.

Australian Medical Board Proceedings.

SOUTH AUSTRALIA.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1919 to 1935, of South Australia, as duly qualified medical practitioners:

Archibald, Francis Callum, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Skipper, John Stark, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Cooling, Max Sylvester, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Lewis, John Aylward, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Anderson, Jack Sidney, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Leyland, Geoffrey Agar, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.
Abbott, Nigel Drury Gresley, M.B., B.S., 1944 (Univ. Adelaide), Royal Adelaide Hospital.

Medical Appointments.

IN pursuance of the provisions of Section 6 of *The Prince Henry Hospital Act*, 1936, of New South Wales, Dr. S. A. Smith and Dr. T. M. Furber have been appointed Directors on the Board of the Prince Henry Hospital.

Dr. Mary Taylor Burnell has been appointed temporary honorary assistant anæsthetist at the Royal Adelaide Hospital, Adelaide.

Dr. Stanley Gordon Stevens has been appointed Senior Medical Officer, New South Wales Department of Public Health.

Dr. Nina Patty Banks has been appointed Medical Officer, New South Wales Department of Public Health.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Manuel, Pattie Flora, M.B., B.S., 1942 (Univ. Sydney), c.o. Children's Hospital, Camperdown.

Diary for the Month.

OCT. 10.—Tasmanian Branch, B.M.A.: Branch Meeting.
OCT. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
OCT. 10.—New South Wales Branch, B.M.A.: Organization and Science Committee.
OCT. 13.—Queensland Branch, B.M.A.: Council Meeting.
OCT. 13.—Victorian Branch, B.M.A.: Ethics Subcommittee.
OCT. 16.—Victorian Branch, B.M.A.: Hospital Subcommittee.
OCT. 16.—Victorian Branch, B.M.A.: Finance Subcommittee.
OCT. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
OCT. 17.—Victorian Branch, B.M.A.: Organization Subcommittee.
OCT. 18.—Western Australian Branch, B.M.A.: Branch Meeting.
OCT. 19.—South Australian Branch, B.M.A.: Council Meeting.
OCT. 19.—New South Wales Branch, B.M.A.: Clinical Meeting.
OCT. 19.—Victorian Branch, B.M.A.: Executive Meeting.
OCT. 24.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 25.—Victorian Branch, B.M.A.: Council Meeting.
OCT. 26.—New South Wales Branch, B.M.A.: Branch Meeting.
OCT. 27.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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